Coop's Satellite Digest

March 15, 1986

Scrambling: Evolution or Revolution

Zoning and Your Business

Reassessing Mounts

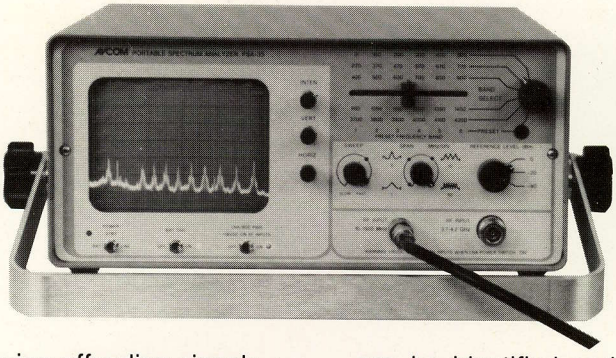
TAKE ALL THE GUESSWORK OUT OF TVRO INSTALLATIONS AND T.I. ANALYSIS WITH AVCOM'S NEW PSA-35 PORTABLE SPECTRUM ANALYZER

ASK ANY TVRO DEALER WHO OWNS AN AVCOM PSA-35 PORTABLE SPECTRUM ANALYZER.

With AVCOM's PSA-35 Portable Spectrum Analyzer you can measure and document TVRO system performance after installation or service. Troubleshoot system problems by observing output signals from LNA's, BDC's, Line Amps and Splitters, and other RF signal components. Measure block system signal balance.

Identify and resolve Terrestrial Interference problems quickly and precisely by displaying offending signals on the PSA-35. Customers can be shown the nature of T.I. problems for clearer understanding.

AVCOM's high performance PSA-35 Spectrum Analyzer becomes even more attractive when price is considered. The PSA-35 is $1965. Nothing on the market offers its performance at a comparable price.

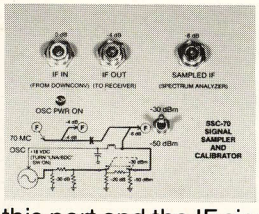


Progressive TVRO Dealers, Repair Centers, and Manufacturers will find AVCOM's PSA-35 Spectrum Analyzer to be an indispensable instrument for rapid testing and alignment of satellite equipment. Problems that might otherwise take hours, even days to resolve, can be identified and corrected in minutes, saving money and time, and reinforcing customers' confidence and trust. In terms of time saved and customer good will, an AVCOM Spectrum Analyzer will pay for itself quickly.

AVCOM'S PSA-35 SPECTRUM ANALYZER BECOMES EVEN MORE VERSATILE WHEN USED WITH THESE NEW ACCESSORIES!

SSC-70 SIGNAL SAMPLER AND CALIBRATOR — AVCOM's new Signal Sampler and Calibrator, SSC-70, is designed for use with the AVCOM PSA-35 Portable Spectrum Analyzer.

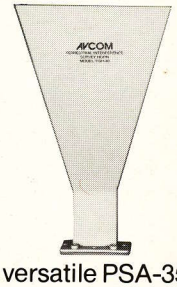
The first function of the SSC-70 is to sample TVRO downconverter IF signals in the 30 to 200 MHz range. The IF signal is looped through the SSC-70 between the downconverter and the satellite receiver. Tuning voltage present in the IF coax is passed from the receiver to the downconverter unaltered. The IF signal is sampled and is available on the "SAMPLED IF" F-fitting. The PSA-35 Spectrum Analyzer is connected to this port and the IF signal can be accurately measured and examined.



If Terrestrial Interference filters are in the IF coax line, they can be tuned precisely so that video quality is preserved while T.I. is minimized.

Also an internal oscillator operating at 70 MHz, with harmonics at 140 MHz and beyond provides a quick means of checking amplitude calibration and frequency setting of the PSA-35 Spectrum Analyzer. Two output signal amplitude settings are available, one at -30 dBm and another at -50 dBm (at 70 MHz). The output level is selected by a front panel switch. The calibration oscillator is powered by the PSA-35 LNA/BDC power through the input connector. A front panel LED indicates when the oscillator is on.

TISH-40 TERRESTRIAL INTERFERENCE SURVEY HORN · AVCOM's new Terrestrial Interference Survey Horn, TISH-40, is designed to be used in conjunction with the PSA-35 Portable Spectrum Analyzer for site surveys.



The TISH-40 Terrestrial Interference Survey Horn features 18 dB gain in the 3.7 to 4.2 GHz range of frequencies. It is highly directional with high gain and rugged construction. Terrestrial Interference sources can be pinpointed quickly and accurately to increase the utility of the versatile PSA-35 Spectrum Analyzer. 1/4-20 stainless nuts pressed into the flange make LNA assembly and disassembly quick and easy.

FOR MORE INFORMATION WRITE: AVCOM, 500 Southlake Blvd., Richmond, VA 23236 or call (804) 794-2500. To order, call, 1-800-446-2500.

AVCOM's PSA-35 — THE MOST VALUABLE TEST INSTRUMENT YOU CAN BUY FOR INSTALLING AND SERVICING TVRO SYSTEMS!!

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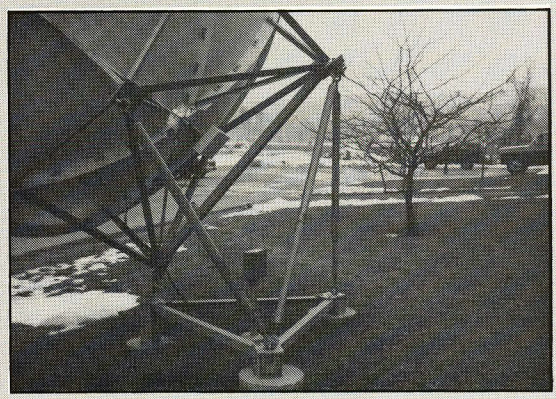
MARCH 1986

COOP'S SATELLITE DIGEST

Our Cover/ Not an offset fed 20 footer! This commercial grade dish collapsed onto its center at CSD Test Lab during recent Hurricane Kate blow (see CSD for January 1986). Sat-Tec's John Ramsey in center.



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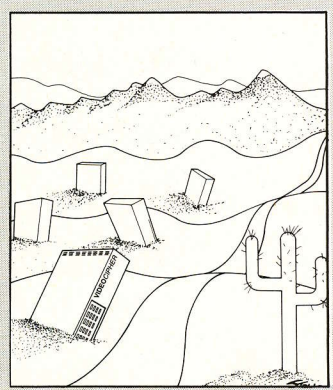

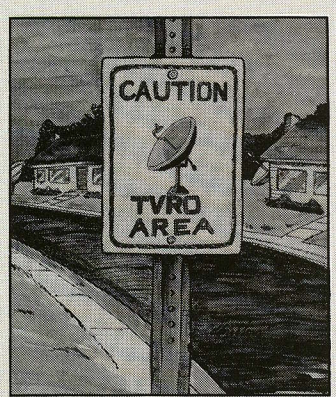

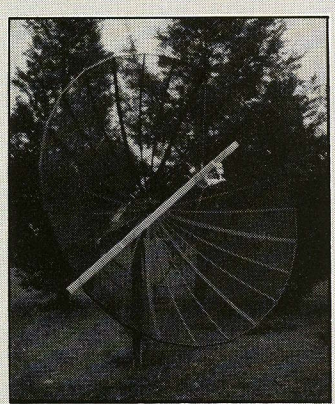

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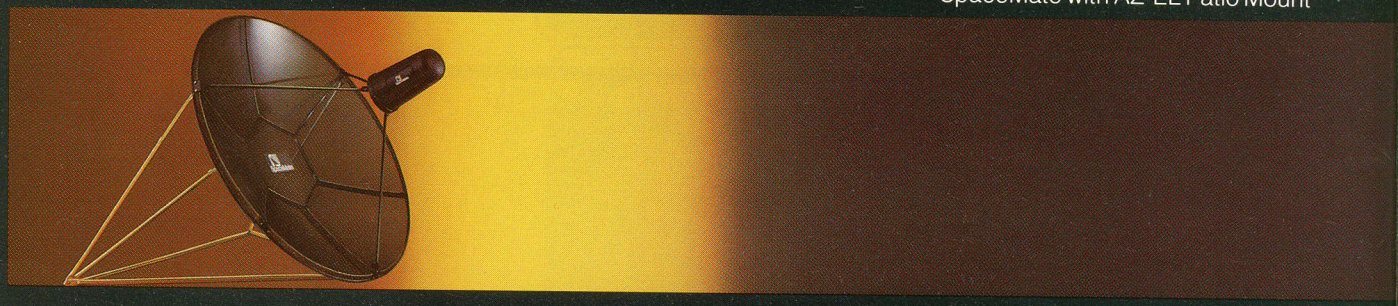
This is the 104th edition of CSD.

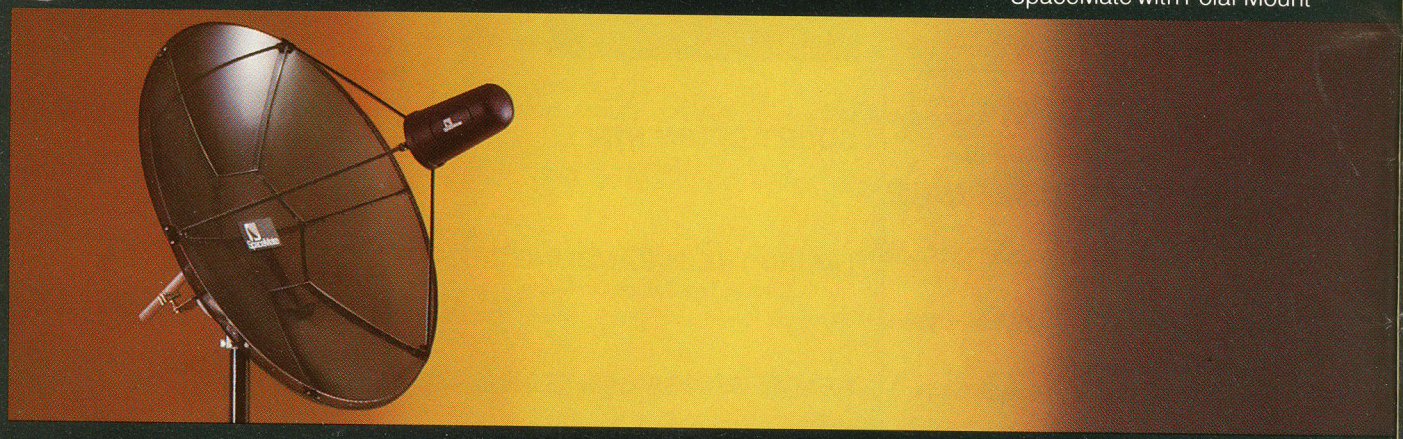
Great reception

SpaceMate with AZ-EL Patio Mount



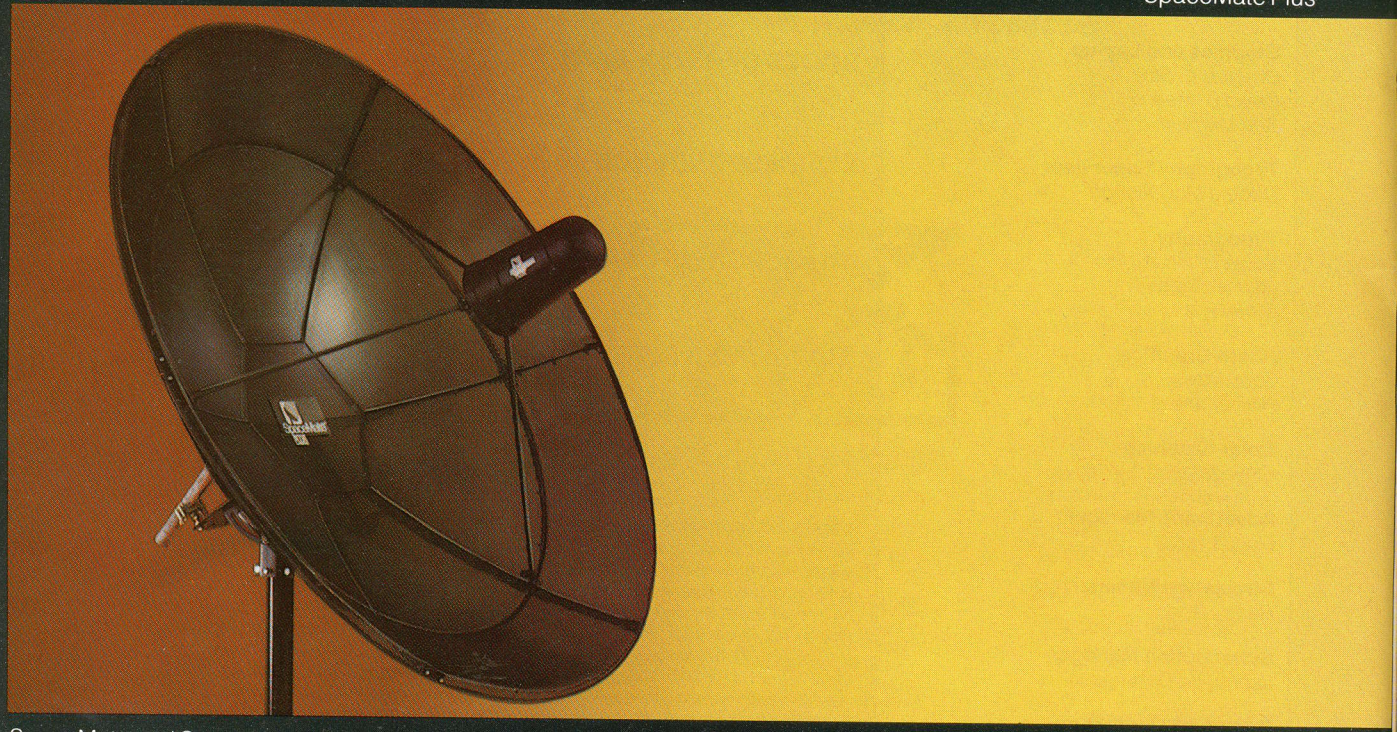
gets better...

SpaceMate with Polar Mount



and better.

SpaceMate Plus



SpaceMate and SpaceMate Plus are also available with solid aluminum reflectors for optimum performance with Ku-band.

First SpaceMate changed a lot of people's minds about six-foot dishes—with great reception.

Now SpaceMate has taken great reception one step farther with innovative design flexibility that serves the needs of consumers, dealers and distributors.

And SpaceMate now comes with a lightweight, all-aluminum AZ-EL Patio Mount for do-it-yourself assembly and aiming (requiring only 10 minutes). *Or* with a true Polar Mount. *Or* with two-foot extender panels to create the eight-foot SpaceMate Plus.™

All three options provide complete compatibility with C-band and Ku-band transmission. And with the conversion to 2° satellite spacing, your customers with SpaceMate Plus will be ready without any system modifications. Those with SpaceMate simply need the extender panels.

This kind of flexibility in product design means distributors and dealers can supply a variety of dish options with a limited inventory. And all these products are UPS-shippable, for simplified storage and low-cost delivery. All SpaceMate reflectors are available in solid and perforated materials and with Ku-band feedhorns and mounting accessories.

FREE TRIAL OFFER. We'll ship a SpaceMate or SpaceMate Plus antenna directly to you for a no-obligation 30-day evaluation. Contact THE STOLLE CORPORATION, a subsidiary of Aluminum Company of America, 1501 Michigan Street, P.O. Box 221, Sidney, OH 45365. Phone: 1-800-556-3203.

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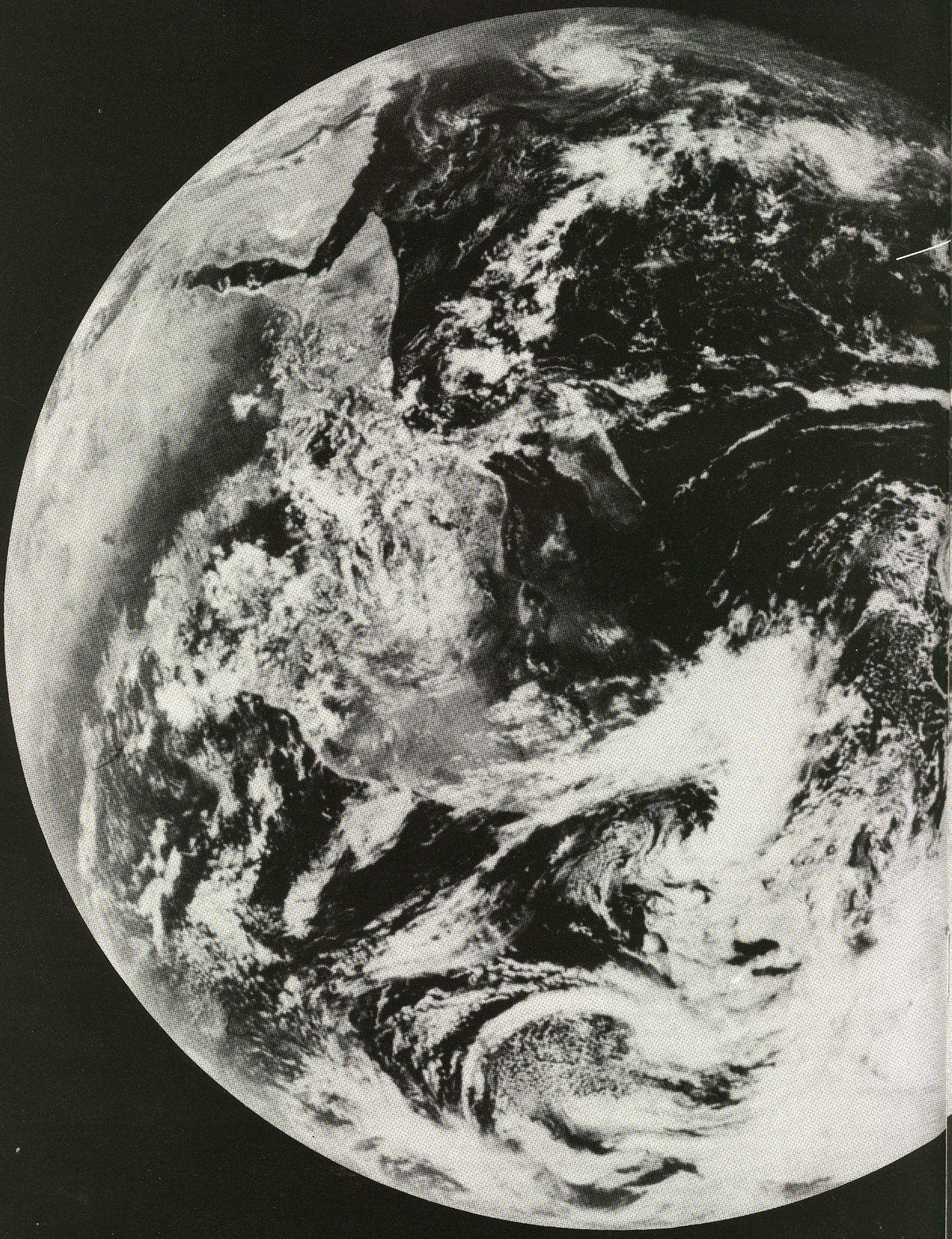

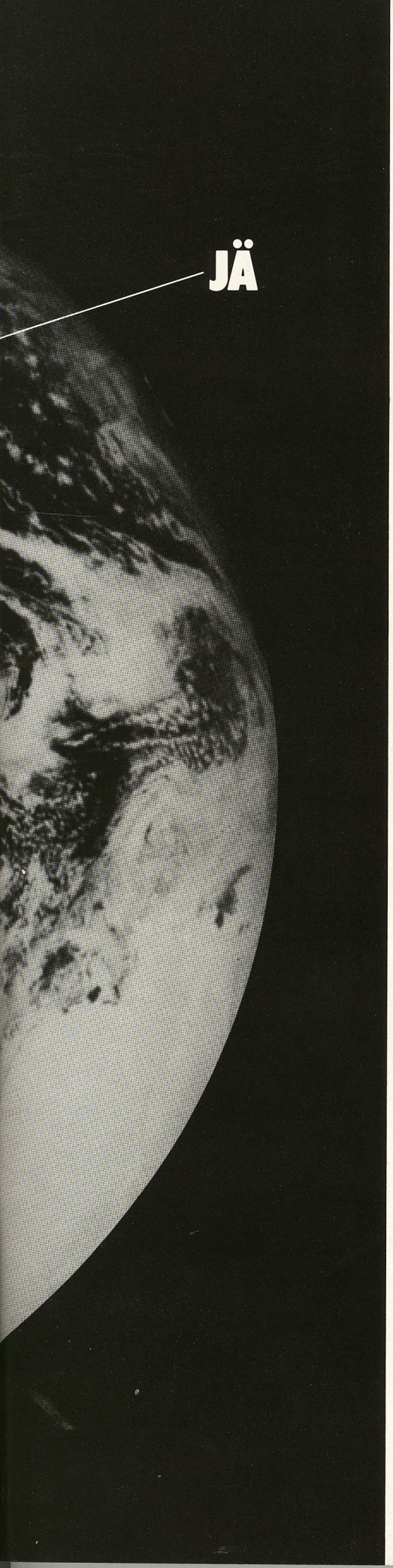

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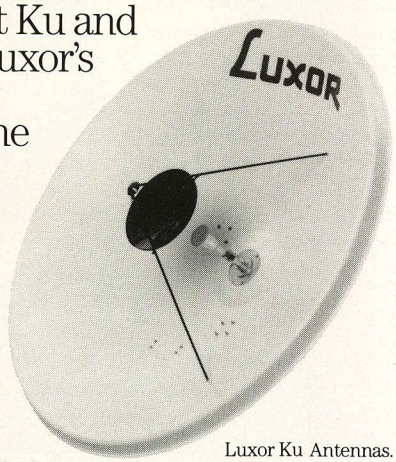
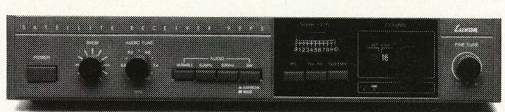
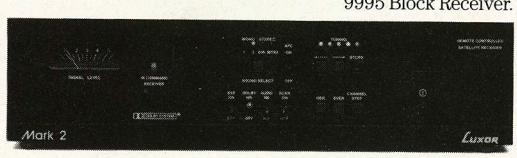


Luxor Ku Antennas.

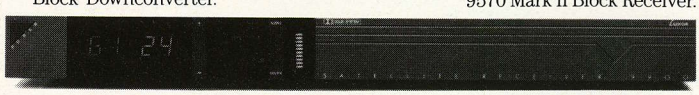


9995 Block Receiver.

Microwave Block Downconverter.



9570 Mark II Block Receiver.



9900 Block Receiver.

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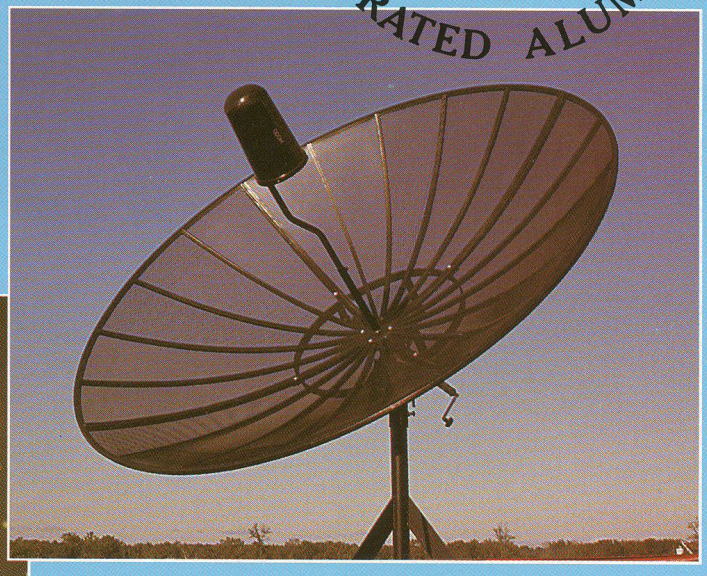
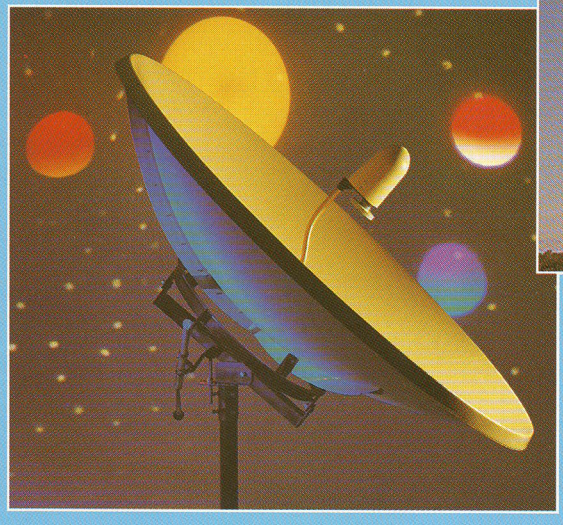
Our NEW Perforated-Aluminum Dish is designed to meet your customers needs now and for years to come. Our 10′ Classic is ahead of it's time and you can see the difference in the construction and the performance of an ODOM.

The Classic is Ku-Band compatible and it fills the market need for a quality metal antenna that lets the view thru. . .not the signal.





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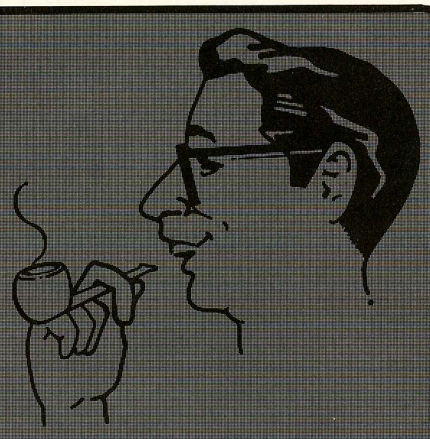
Coop's Comments



Haiti

I watched with more than casual interest as the various news networks reported on the flight of Haitian President-For-Life, Baby Doc Duvalier, during February. Old timers with CSD will recall my report some four years ago of a visit I made to Port-au-Prince, Haiti, to visit, at his Presidential request, Baby Doc. At the time I wrote of the visit, which was related to satellite television, I did so with more than the usual amount of trepidation. Here's why.

Shortly after my family and I moved to the Turks and Caicos Islands permanently in 1980, we received a message from the Haitian high command. "Baby Doc would like you to come to Port-au-Prince to visit him," the message said. Haiti's northern shore is barely 100 miles from Provo and about 30% of Provo's population is Haitian. Anyone who pays any attention to the news has learned through the years that Haitians, as a group, have been fleeing their homeland for decades to escape the less than pleasant living conditions of this poorest-of-all Caribbean countries (average annual income is $130 per year). For generations, Haitians have crammed into small boats to flee to the Bahamas, Florida, and anyplace else that will allow them in.

I had been to Haiti several times. I have instructed several people in Haiti on the fine art of bringing US and Canadian satellite television to the country. In the process of that instruction, I came to know and grow quite close to a number of people who lived there. One fellow, the owner of several tourist oriented hotels in Cape Haitien, on Haiti's north shore, became so interested in television through his visits with me that he formed a company to buy out a small but promising cable television system in the capital city of Port-au-Prince. In the process of all of this, the Haitian dictator, Baby Doc Duvalier, learned about satellite television and naturally wanted a system of his own. His invitation for me to visit was designed, I would learn, to discover how he could have a system for his palace.

"We will send a Haitian Air Force plane to pick you and your family up," read the communique. I discussed the invitation with Susan and the kids, and we decided that since we were being invited by Baby Doc personally, there was probably little chance that anything nasty would happen to us. Besides, how often does one have the opportunity to visit privately with a personality like Baby Doc?

Our pilot turned out to be a free-lance type with a remarkable resemblance to the Red Baron. You remember the Red Baron; he and Snoopy fought it out in the skies over France during World War I. How many people wear leather jackets and have long, wind blown scarves that trail behind while piloting airplanes? Our pilot did. Our arrival in Port-au-Prince included being whisked through customs and into a waiting government limo. We were impressed.

We were taken to a nice hotel and given something to drink. They had arranged for Susan and the kids to tour some typical tourist locations while I was to be taken to the palace to meet Baby Doc. There seemed to be a snag, however, but after cooling our heels for several hours in the hotel it was finally sorted out. In honor of the occasion, I had bowed to social pressure and put on long pants and a shirt with a collar. My typical garb in those days was short cutoff pants, sandals, and a T-shirt. Hey, even I knew you wore long pants when you saw a head-of-state. Ooops, the only trouble was I was still wearing sandals. That turned out to be the problem.

There was a dress code at the palace. You may recall that Haiti is a former French possession and the French have their own way of doing things. Even though the French had long before left Haiti, their social graces had remained behind. One of these traditions included being dressed in no less than a business suit when visiting at the palace. So behind the scenes there were negotiations going on. It turned out like this.

"He's here; Monsieur Cooper has arrived."

"The President will see him at 12 noon."

"I think not; he does not have proper attire."

"Go to the wardrobe room and find him proper clothing."

"I don't think he would like that; We must find another solution to this problem."

"Hummmm."

It took two hours to figure out 'hummmm.' The solution?

"We will transfer the meeting to the Summer Palace; The President will meet you there at 1 PM."

The Summer Palace, some 15 minutes out of town at the top of a mountain, was less formal and the dress code there was not so rigid. Unfortunately, the Summer Palace had been closed up for months because this was winter. In one hour's time, a sizeable staff would be assembled and transported to the Summer Palace. Windows would be uncovered, rugs rolled out, floors cleaned, and air conditioning turned on. In short, a small army of perhaps 100 people would hustle their bustles to get this giant palace ready for a meeting an hour later; all because I had the bad taste not to wear a suit to visit Baby Doc.

"Come with me and we will go to the Summer Palace," directed the Air Force Captain assigned to escort me. We climbed into a new Mercedes and headed down streets only inches wider than the car itself. My companion spoke excellent English.

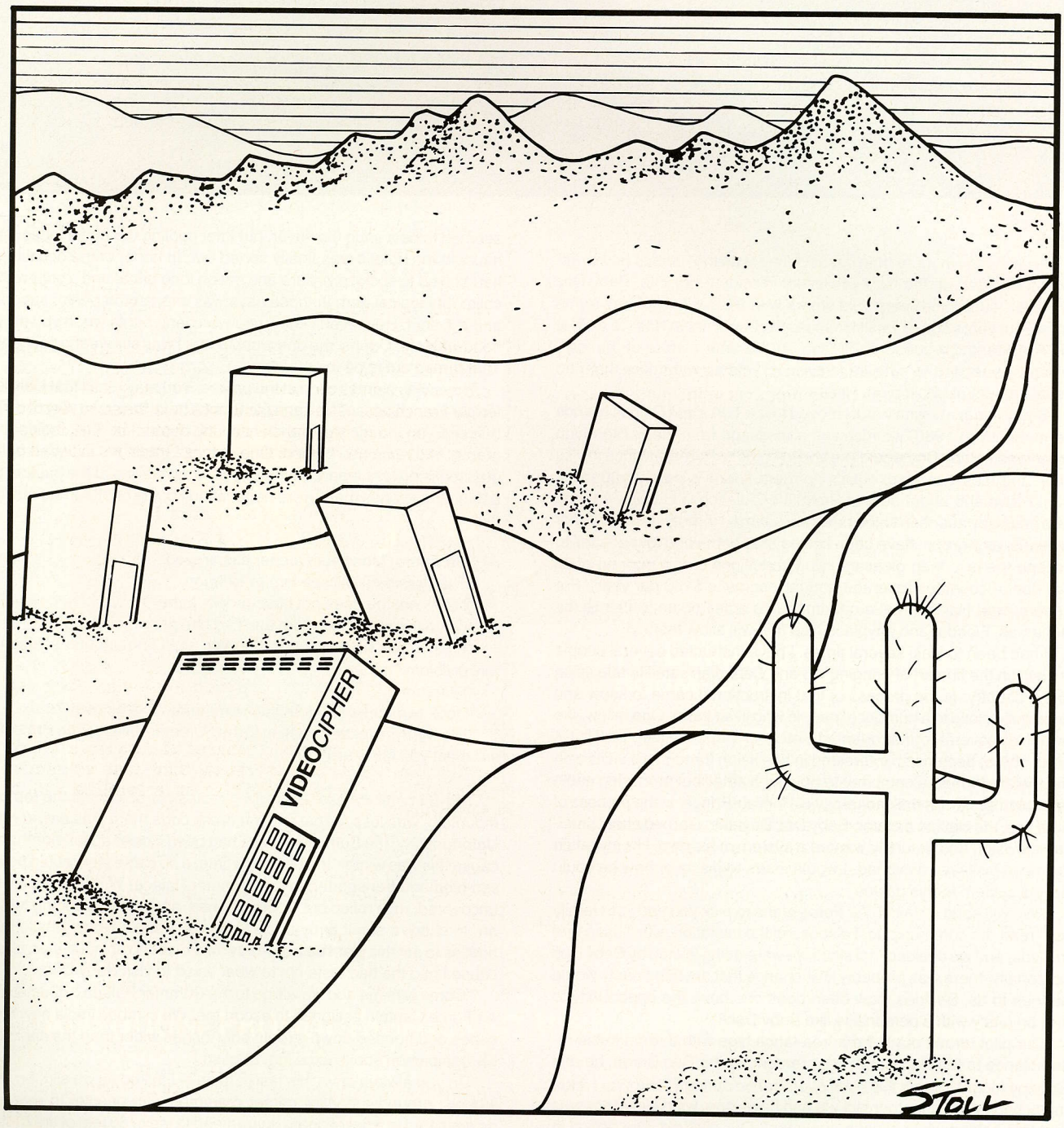
"Do you always drive this fast in town?" I asked as we slid, on two wheels, around a narrow corner crammed with people. In reply he downshifted to a set of gears guaranteed to leave 50 feet of tire rubber on the pavement behind us.

"If I slow down and we get caught in traffic, they may stone us!" he said. I would be far more nervous before the afternoon was over.

Arriving at the Summer Palace, a small army of workers were scurrying throughout the property making it ready for the President. We

Coop's/continued on page 55

Taking The Scrambling Initiative Away From Cable



Evolution Or Revolution?

The winter selling season, with one notable exception, has always been traumatic in the satellite antenna business. By the most conservative estimates, business in the three month period January—March typically falls to around 35-40% of the period October — December. When any industry suddenly finds itself selling less than half of what it had previously been selling, people get hurt. This year the winter doldrums

have been especially devastating because of the marketplace uncertainty attached to the scrambling issue.

Measuring the depth of the business slowdown produces some interesting barometers. A significant amount of equipment was in the pipeline at the start of the new year. Fall business was off by as much as 30% from the predicted levels, and inventories of equipment at the wholesale level had been keyed to the expected sales. Thus, as January 1 dawned, the warehouses holding equipment were stocked with four to six months worth of sales when they should have been holding only 30-45 days worth of product. Much of the equipment stacked in warehouses was factored (financed by its own inventory value). A warehouse holding 1,000 LNAs with a wholesale value of $60 each had $60,000 tied up in LNAs. Multiply that cash investment times all of the warehouses and all of the products in warehouses when business dried up and you have a disaster waiting to happen. And it did; distributors and OEMs caught with bills to pay and greatly reduced cash in hand were forced to clear out products at cost and below cost. When a major distributor began advertising LNAs from a major manufacturer for under $20 each, those suppliers with factor-financed inventories of LNAs at $60 cost, each were suddenly in a very tight spot.

Multiply that sudden write-down of product value times all of the warehouses and all of the products in the industry and you have panic.

American Microcom 'just couldn't make it' with sudden, severe cutbacks in business at both its North Carolina and Ohio facilities.

"Satellite Dish Company Closes," reads the headline. The story appearing in The Winston-Salem Journal for February 1, recounts the door closing of American Microcom's North Carolina distribution warehouse. Pat Casdorph, the firm's general manager noted in the report, "Business has almost slowed to a standstill. The consumers believe that all of the channels on satellite will be scrambled and they are sitting back and waiting to see how much the decoders will cost and whether the decoders will be available or not."

"Business is off between 80 and 90 percent," reports John Kaul of Kaul-Tronics. Kaul also attributes the slowdown to the scrambling scare. "HBO really did a number on us (the satellite industry). They caught us with our pants down and we are guilty as hell of not being ready for their intensive PR campaign that spread all over the country."

Bad news. The industry is filled with bad news at this time. Hope springs eternal, however, and with the coming of the new spring selling season, there is the optimism that business will turn around. "I fear that we are going to lose many of our old friends in this thinning down process," notes Chris Schultheiss of Triple D Publications. "And I also fear that we are looking for the wrong types of solutions. This problem demands a critical look at the nature of what is happening to TVRO and a game plan to resolve these problems based upon long-term stability in the marketplace. We need a game plan for the full contest, not just a next-play plan for third down and 30 yards to go."

Satellite Dish Company Closes

By Katharine Blood
JOURNAL BUSINESS REPORTER

KERNERSVILLE — American Microcom, a wholesaler of satellite dish antennas here, has gone out of business, partly because of a large drop in sales after Home Box Office and Cinemax started scrambling their signals two weeks ago.

Until Jan. 15, satellite dish owners could get about 125 channels, including pay-TV channels like HBO and Cinemax at no extra cost. Then HBO and Cinemax began scrambling their signals, forcing satellite dish owners to buy a $395 decoder. Viewers must also pay a monthly fee to get the programs.

Summit Communications Inc. of Winston-Salem charges $10.95 monthly for HBO and $8.95 for Cinemax.

Jan Ackley, branch manager for American Microcom's Kernersville warehouse, which opened last July, said that a big decline in sales in the satellite industry caused the company to cut back its expenses by closing the Kernersville warehouse. The company, which is based in Bowling Green, Ky., also has closed its warehouse in Cambridge, Ohio. Only the warehouse in Bowling Green will remain in operation.

"We Just Can't Make It"

The Kernersville office of American Microcom sold satellite dish antennas to retailers in North Carolina, South Carolina, Virginia and Tenneesee.

"We were a relatively small branch, and we were testing out the area," said Ackley. "Business went down 80 percent, and we just can't make it."

Ackley said that sales were down in part because of all the talk about HBO and Cinemax scrambling their signals. Several other channels are considering scrambling their signals, he added.

Pat Casdorph, general manager of American Microcom's Bowling Green operation, said that consumers think all the channels available on a satellite will be scrambled.

"The desire to buy the satellite dish is down. Business has almost slowed down to a standstill," said Casdorph. "People are sitting back, waiting to see if the decoders will be available and how much they will cost."

100 Channels Available

Even with the loss of HBO and Cinemax, Ackley said that more than 100 unscrambled channels are available on a satellite dish.

Much of North Carolina's population is in rural areas that cannot get local channels or good reception without a satellite dish. There are 1.3 million dish antennas in operation nationwide and about 28,000 in North Carolina.

The antennas cost anywhere from about $1,000 to $3,000, according to local retailers.

Larry Slate, the owner of Friendly Video and Satellite in Kernersville, said that there has been a slowdown in business because people think every channel is being scambled, not just HBO and Cinemax.

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The Nature Of Scrambling

Few would argue that scrambling is finally here. What may be arguable is the depth of the scrambling cut and the long-term effects on scrambling for satellite antenna sales. Some history.

Home satellite system growth has been fueled largely by the totally unrestricted access to dozens and ultimately more than a hundred separate satellite delivered programming services. The public may select individual terminals based upon operational features but the decision to buy a terminal in the first place has been totally paced by the availability of programming. Right or wrong, the perception of the public is that a satellite dish offers more than a hundred TV program channels without cost nor obligation to pay. The satellite industry, right or wrong, has fostered this belief by not being more candid with its customers. The public's perception of satellite TV has been largely formed by the sellers of satellite system hardware. And starting with the official attitude of the trade association, SPACE, that attitude has been defiant and insolent throughout the industry for several years. Sooner or later there would be a price to pay for that attitude. And why? Because the programming TVRO has been accessing did not belong to TVRO. No, it was never public property and defiant statements about it belonging to whomever could catch it in their backyards aside, it never would be public property.

The direction of the satellite industry at the moment continues to be pushed by the defiant elements of the industry. Plans to raise hell in Congress and the courts are bold but extremely risky. First, there is the time element; legislative or court victories require years rather than months to effect. The industry could easily win the battles, but lose the war in that time period. Next, there is the cost element; the trade association, SPACE, has been growing at an expotential rate. Its day to day overhead has more than doubled (some say tripled) in the last year. Unfortunately, as the costs have escalated, the revenues from member-supporters have dropped just as dramatically in recent months. This is caused by the primary revenue sources being tied to industry sales performance. We all recognize that sales are off. Court and legislative victories are not only long in coming, they are expensive to implement. The funds to implement, and engineer a course through the scrambling mine fields may not be fundable given the present state of the industry's financial resources.

The public confidence in home satellite systems has eroded to an all time low. Dealers, with a few exceptions, have not been able to cope with the tremendous amount of emotional 'bad press' generated by HBO and others in the cable arena. Consumers have lost their confidence in satellites as an entertainment system. When they ask retailers to explain the scrambling situation, the retailers either don't know the answers, cannot put their answers into words, or revert to the defiant emotionalism of a wounded duck dive-bombing the Earth below like a kamikaze pilot. SPACE has attempted to provide retailers with a set of responses for the hard consumer questions but somehow that effort has failed. Perhaps the retailers have lost faith in SPACE itself and do not believe the material provided by the trade association.

There are several possible directions for the present chaos to go:

1) Confusion will continue and the public will forget its fears. Certainly the American public does have a short memory and in three to six months, it could be a bad memory. However, the risk here is that a new barrage of anti-satellite propaganda from HBO (et al) would start the cycle all over again.

2) SPACE's aggressive stance before Congress and the courts will generate new hope and new press. That could change the attitudes of some consumers, but until the final law is passed and the final court decision is handed down, the marketplace will continue to be fragmented and subject to retaliatory strikes from the cable PR machine.

3) Someone, somehow, will create a marketing program for software which will be clear, easily understood, and acceptable to both the existing satellite owners and the yet unsold satellite owners. Such a program must offer a suitable number of programming sources at a monthly rate which is attractive to the viewing public.

With retail business dramatically off, the funds needed to pay for an industry wide promotional campaign simply may not be available.

What Are Those Sources?

the major cable programmers attempted last fall to put together a programming consortium. They failed. The cable television trade association had a similar effort destroyed when some of the major programmer players refused to be a part of the project. That left only the cable system operators as potential distributors of software programming for home satellites.

TCI, a major (number two in size) cable system operator has created a sales program for satellite viewers. TCI seems to have the additional support of a number of other major cable (MSO; multiple system operator) firms. Basically, TCI proposes the following:

A) The consortium of cable system operators will lease or sell M/A-Com VC2000 series descramblers to the home viewer. If the unit is rented/leased, the charge per month will be $6 to $8. The satellite antenna owner would still have the option of purchasing the descrambler for the standard retail (user) price of $395.

B) The satellite viewer would pay a monthly access charge of $6; this fee is designed to help defray the cost of maintaining a file record for that viewer at the LaJolla (California) M/A-Com operated scrambling uplink control center.

C) The viewer would pay a basic package charge of $6 per month. This would result in the viewer receiving 12 to 15 basic channels such as CNN, MTV, ESPN, BET, ARTS, USA, and so on. The major market Indie station services (WGN, WOR, KTVT, WPIX, and WTBS) are not included in this basic package at this time.[1]

D) The viewer could then optionally also subscribe to some quantity of premium programming; the suggested rates are $10 per month for the first such service selected and $6.50 per month for each additional service selected. Among the services to be offered are

HBO, Cinemax, Disney, Showtime, and The Movie Channel.

Dollars

For the basic service, the homeowner who rents or leases a decoder will have $8 + $6 + $6 or $20 a month invested in receiving up to 15 channels from cable programmers. For this package plus two premium services, the fee will be $36.50 per month. Cable people point out that these rates compare favorably with cable rates for terrestrial service from cable systems.

A primary concern of SPACE from the outset of the scrambling mess has been that satellite dealers play some part in the reselling of the programming itself. This plan has been driven by two factors.

1) There has been a fear amongst dealers that if cable programmers only distribute through cable system operators, the cable systems will expand from software sales to hardware (system) sales. SPACE, representing satellite retailers, would like to protect that turf for its membership or it could awaken one day and find no membership remaining.

2) SPACE also fears a monopoly of the software pricing; if only cable operators can sell (retail) the software (programming) packages, the pricing is likely to remain high because of the need to protect the monopolistic pricing of the cable operator through his cable system. SPACE would prefer to see multiple sources for programming available to insure that pricing is kept competitive.

The ultimate concerns here are that if only one group controls both hardware and software, prices will rise rather than fall. That will mean fewer overall system sales and that reduction in system sales will hurt not only the retailers who have been cut out of the deal but the original equipment manufacturers as well. SPACE depends upon the OEMs, the distributors, and the dealers for its funds.

Public Confidence As An Issue

Because of the very successful campaign created by HBO (et al) to brand all home satellite owners as thieves and pirates, and because of the widespread coverage given to the January 15th scrambling debut of HBO, the typical person in the street now believes that virtually all of the satellite program channels will one day scramble. The public no longer believes that owning a dish is desirable.

How do you rebuild public confidence in home satellite systems?

Promises of future court or legislative victories no longer work. 'Being legal' no longer works because it fails to address the direct issue of scrambling. The public simply no longer believes home systems can deliver large quantities of unscrambled programming. Cable's PR machine has done an excellent job of destroying the credibility of our industry. It is painfully simple.

Just what might it take to return public confidence and provide the retailer with the tools he needs to be an effective and convincing seller of satellite systems? Programming; access to high quality programming at reasonable pricing. Now, how much programming will it take to bring back the system buyers? That's the $64 question.

"Baseball Urges Scrambling Of Games' Satellite Feeds," reads the headline in cable's Multichannel News. The story goes on to explain that Major League Baseball (MLB) is urging all of its individual clubs to adopt a universal scrambling standard for the 1986 season and to assure baseball participants that no back-hauled baseball games being fed from the stadiums to hometowns are transmitted in the clear on satellites in the future. Why would baseball do such a dastardly thing? "It is in the best interest of the right-holders to protect the marketplace," the report notes.

HBO may have 'shot itself in the foot' by over-publicizing the fall out of scrambling. If they wanted TVRO 'dead,' they got their wish.

"CBS Works East In Scrambling Feeds," reads another headline. This report notes that, "The network transmission is a private transmission meant only for the network and its affiliate stations." CBS is currently scrambling the mountain time zone feeds on Telstar and over the next 18 months it will further scramble the west coast, central, and finally the east coast time zone feeds. All CBS feeds, direct to affiliates and back-hauls from sporting events, as well as news feeds will eventually be scrambled. ABC and NBC say they, too, will scramble.

"Even with the loss of HBO and Cinemax, more than 100 channels are available unscrambled on a satellite dish," suggests Jan Ackeley, former North Carolina branch manager for American Microcom. Microcom closed its North Carolina facility doors in January complaining that business was off by more than 80 percent.

"SPACE, the trade association for the backyard earth station industry, again last weeḱ threatened to sue CBS — as well as superstation WOR—if they do not make their signals available to home satellite owners who cannot get the signal off-air," notes another trade press report.

Let's be practical and realistic, about where scrambling is headed. A tabulation is in order.

Category	Total Channels Available	Channels Likely To Scramble	Net Remaining Not Scrambled
Cable Programmers	36	22	14
Non-Cable Broadcast	24	20	44
Sports Back-hauls	12	12	0
Non-Cable, Non-Broadcast	23	6	17

By this tabulation, we have just under 100 total channels available originally (others counting can find slightly more or less). If you apply the logic of why certain services would scramble and why others would not scramble, you come to the reasoned conclusion that out of 95 such service channels studied, 62 will eventually scramble. That's two-thirds of the total. And those left unscrambled will represent very few of the truly viewer-desirable services.

The satellite industry, to survive, must carefully analyze what services are needed to keep TVRO alive, and then engage as an industry in seeing that those categories of service remain available to the public. We have some help if we study the May-June published results of various studies conducted within the marketplace (see CSD for June 1st and June 15th, 1985). There we learned that with more than 2,000 owners responding to a detailed questionnaire, the program categories most popular were (1) movies, (2) sports, and (3) news. The services most popular were (1) HBO, (2) The Movie Channel, (3) Showtime, (4) Cinemax, (5) ABC, (6) CBS, (7) NBC, (8) WTBS, (9) ESPN, and (10) CNN.

All 10 of these services plan to scramble. So do all of the next 10 on the list. However, at the present time in the process of scrambling, all but WTBS will be readily available via one or more software marketing plans to home satellite viewers; except for the three network signals.

The three network signals create a special problem for satellite owners. A significant segment of the American satellite viewing public does not have access to all three of the major network signals. Studies of these viewers reveal that approximately 35% of them tune-in network signals via satellite each day. There could be several reasons for this:

1) Local terrestrial network reception is flawed;

2) The presence of multiple-time zone feeds of network programming via satellite is more attractive to the viewers than live reception in a single, fixed time slot.

No study has been done to measure the exact reasons or the type of viewing done of satellite fed network signals, so decisions affecting the ultimate availability of network programming via satellite cannot be made at this time. The networks do plan to scramble; CBS is already scrambling their mountain time zone feeds and will progressively expand scrambling to the west coast, central, and eastern time zones before the end of 1987.

SPACE, true to its often insolent role, decries the scrambling of CBS. SPACE threatens lawsuits, something it has been doing for nearly half a decade. CBS says, "We are very concerned about those small number of people who cannot receive us via terrestrial transmission and this problem will be addressed." But does CBS think satellites are the answer?

Unfortunately, no. "We don't plan to reach these people via satellite transmission." How would CBS reach these rural people? A task force from the CBS affiliates group is studying translators and other terrestrial rebroadcast devices. They will not find an answer here as more than 30 years of attempts to do this will reveal.

There is a model of a sort for this problem in Canada. CANCOM, the Canadian firm that offers eight different service channels for a now-reported $20 (Canadian) per month (including Oak Orion decoder) provides the four US network channels as a part of their package. The Oak Orion units marketed through CANCOM are not generally available within the US and there is no mechanism in place to allow US satellite viewers to subscribe to the CANCOM service, short of traveling to Canada or arranging with a Canadian contact for the subscription. But the model exists nonetheless.

CANCOM, somewhat neglectful to respect US/Canadian legal treaties dealing with satellite telecommnications, has installed off-air receiving equipment of the Ontario side of the Michigan border. There they select the local ABC, CBS, NBC, and PBS signals from Detroit and uplink them (Oak scrambled) to Anik D. The Detroit stations are operating 24 hours-per-day and this gives CANCOM viewers access to not only the regular ABC, CBS, NBC, and PBS programming but, they also receive the non-network programming selected by the respective stations.

The three network signals create a special problem for TVRO. Studies reveal 35% of all TVRO viewers watch one or more network satellite feeds per day.

One of the problems with this approach is that Detroit is in the eastern time zone of the US, and that brings network programs up on the screen three hours earlier for western Canada viewers than they would be available via local terrestrial transmitters. How CANCOM subscribers in the west have adapted to this time shift has not been measured.

CANCOM selected the Detroit US network stations to turn into network superstations for Canada after carefully considering the options. The US signals would ideally be close by to the Canadian border to enhance the quality of the off-air reception. They would come from a major population center since big markets can better afford high quality off-network programming than smaller market stations such as Minot, North Dakota.

Several Options

As an industry, the home satellite marketplace must be honest enough to recognize that its marketplace will be seriously eroded if the three major US network signals disappear from the unscrambled list along with the major cable programmer and sports feeds. It now appears that given enough time, the cable program channels will universally become reavailable through any of several cable instigated marketing plans. The sports feeds, back-hauled to their hometowns for local terrestrial transmissions, will probably be lost for all time. The network programs can be saved. Let's see how and why.

Although SPACE may actually file one or more lawsuits demanding access to network programming directly from the networks, the likelihood that the satellite industry can prevail in this situation is slim at best. Even if the industry does somehow force CBS (et al) to make a channel of their services available, the years spent fighting this issue could cripple home satellite growth for all time. Another solution is demanded.

The answer is quite straightforward; there needs to be a package of network services offered, not unlike the present CANCOM service package. CANCOM has bundled, for Canadian use exclusively, the four US networks plus a selection of Canadian independent superstations. The charge is $20 Canadian or about $15 US per month. That includes the decoder.

There is nothing in present US telecommunication laws to prevent the exact same type of service to be created for US consumption. Here is what is involved:

1) A major market city such as New York, Miami, or Chicago is selected. The local network signals are received off-air with antennas and the signals reduced to baseband. The baseband signals are wired to appropriate uplink antennas and transmitted in a scrambled format to subscribing viewers.

2) If the scrambled signals utilize the same scrambling format as is employed by the cable programmers (i.e. the VC2000 units from M/A-Com), home satellite consumers could then access the scrambled network package with no additional hardware investment.

3) The service could be self-sustaining with a surprisingly small number of paying viewers. Here are some relevent numbers.

C-band transponder costs have dropped significantly during the past two years; and further drops are promised if the FCC deregulates the pricing of such transponders. At the present time, a full-time transponder on a powerful bird such as G2 and F4 can be leased for around $65,000 per month on a short-term lease. Lower rates are available on long-term commitment. The costs associated with installing an off-air fed pick-up system and connecting the system into an uplink transmitter are relatively minor. On a per hour basis, you end up expecting to spend around $80,000 per month or $111.11 per hour (30 day month) for the uplink facility plus the manpower and transponder if the capital costs are amortized over a 60 month time span. That's for the first channel. For each additional channel processed through the same facility, you are looking at $104.17 per hour. Therefore:

1) Six channels of service (consisting of ABC, CBS, NBC, PBS, plus two independent channels) will cost $631.94 per hour.

2) In a 720 hour month, the six channel service would have an operating overhead of $631.94 times 720 hours or $454,999. Remember, that is for six channels of service.

Now, how do you pay for such a package?

There are several possible scenarios. At the CANCOM model of 8 channels for $15 (US) per month, we have a need to serve $454,999 divided by $15 or 44,969 homes to break even. If the sum of all home satellite systems now in place is 1.7M (1.4M in US, .2M in Canada, and .1M outside of Canada/US), 44,969 represents 2.6% of the total satellite universe.

The marketability of a six channel service to 45K homes will be directly affected by the scrambling of other services. Should the existing superstations (WTBS) scramble as announced, and should they not be readily available in the various cable scrambling packages (1) for some indefinite period of time, the desirability of the proposed six channel package would be considerably enhanced.

There are other possibilities to fund the system. An aggressive system marketeer such as Uniden, or Channel Master, for example, could look upon providing their system buyers with guaranteed access to programming as a desirable additional cost of business. If you manufactured satellite systems and were faced, along with every other manufacturer, with the likelihood that you might see your business drop off by 50% or more, would you not take steps to reverse that trend?

Suppose Uniden elected to set aside $180 from the charged-through price for a complete Uniden system for the acquisition of programming. In effect, the Uniden system customer would be receiving a certificate which prepaid, for one year, his subscription to the six channel service. The actual cost of this certificate might be paid totally by the OEM, or a portion might be paid by the Uniden distributor and dealer. The customer would be responsbile for acquiring his own decoder, through his dealer. Uniden, by selling only 45,000 satellite systems in a year, could fund the entire cost of the six channel uplink service all by themselves. If a consortium of OEMs joined together in such an effort, the burden shouldered by a single OEM would be reduced however, and a larger segment of the industry would profit and grow.

Where To Uplink?

There are several considerations important to determining where and how such a cooperative might function.

1) Time Zone: Logic suggests that while it might ultimately be desirable to have both an east and a west coast set of feeds for such a service, you will start with only one of these initially. The largest percentage of satellite systems are located west of the eastern time zone, and the largest percentage of network-disadvantaged viewers live in the west. This suggests strong consideration for a central or mountain time zone fed market to begin with.

Forty-five thousand homes would be required, at $15 per-home/per-month, to 'break even' with a six channel network & Indie service.

2) Outside CONUS Coverage: For every TVRO home within the US that is without major network coverage, we have multiple homes outside the US. The primary viewing choice for Canadians and home satellite viewers in the Caribbean and Central America is the US network services. In this subgroup, the network services rank 1, 2, and 3 ahead of any movie or other program services. And while US satellites do not officially serve outside the US, we all know better. In analyzing how such a package of programming would ultimately benefit the sale of future home satellite systems, we must be honest enough to recognize the importance of these secondary markets. A system developed for serving the satellite industry with these basic services must give some weight to the needs of these sub-groups.

3) Availability of Indie Signals: The TVRO viewing habits studied early in 1985 substantiate the belief that independent superstations, with unique and aggressive programming practices, are very desirable programming sources. During some time-of-day segments, where sports or other unusual programming is carried, these Indies compare favorably with network station rat-

ings. The marketplace selected should have no fewer than two such independent signals available, or alternately multiple uplinks to feed the service would be required; located so as to be capable of receiving a quality input signal from the chosen indie signals.

4) Availability of quality PBS services: The same criteria should apply to the selection of the PBS network service signal, since in major US markets, aggressive programming practices by the PBS station managers makes them formidable programming choices with viewers. Stellar PBS affiliates include Boston's WGBH, New York's WNET, and San Francisco's KQED.

5) Heavy network scheduling: Not many network affiliates routinely clear for broadcast all of the network programs transmitted. All stations are profit oriented and most stations look for perceived profit opportunities within the network schedule. A weak network program, for example, is preempted in a market and replaced with a stronger program created or purchased separately by the network affiliate. In effect, the network program preempted does not air in that particular market. The effect of this decision for a satellite feed can be important since the replacement program may have only local interest in the market where it is intended to air. One way to insure that all of the network programs available are carried on the satellite service feed is to elect to carry flagship stations owned by the networks proper; New York City's WCBS, WNBC, and WABC, or the Los Angeles equivalents also owned by the networks directly.

There are serious conflicts in all of these requirements. But if you work through the importance of each variable, you come to the conclusion that uplinking from the New York City area is a strong contender. There are side effects here, social-cultural as well as economic, to consider.

Remember, that any honest appraisal of how such a service will be utilized must admit the importance of such a service to non-CONUS regions; principally Mexico, the Caribbean, Canada, and Central America. Most CONUS based US home satellite viewers have at least one local terrestrial service to fall back upon for local or regional news, non-CONUS viewers have no such US terrestrial equivalents. That means that within a short period of time, heavy viewing of the selected market signals will in effect extend the market to many foreign countries.

This cultural effect was documented on the NBC Nightly News, this past summer, when a report on the effects of satellite viewing was done in the small Central American country of Belize. There, NBC found that the strong use of Chicago's WGN by cable and rebroadcast facility operators had in effect turned Belize into a suburb of Chicago. The average person in the streets of Belize knew more about the position of the Chicago mayor on matters of political importance and more about the pricing of goods and commodities in Chicago than he or she did about similar news in their home country. The entire country is now die-hard Chicago Cub fans.

The overwash of American television leaves a lasting impression on the citizens of a country or town where the service is made available. In virtually all such non-CONUS markets, the American television not only dominates local broadcasting, it may often be the only television broadcasting available. Selection of which market will become extended into vast regions of the Caribbean, must be carefully considered since the selection process becomes an instrument of inadvertent American foreign policy.

Need For Action

Industry leaders have decried the exceedingly negative approach presently being taken by SPACE. They have found that while an attitude of insolence may be admirable, the casualty levels among wholesale and retail suppliers is not acceptable. Clearly, to turn this situation around, the home satellite industry must redirect its efforts towards more constructive and positive programs which will rebuild consumer confidence in the home satellite medium.

If the industry sits still and waits for others such as the cable programmers and cable system distributors to sort out the programming aspects of TVRO, no less than 18 to 24 months can be expected to lapse before there is a return to the buoyant selling days of yesteryear. The cable programmers and systems operators see no immediacy to rush the details of the TVRO program distribution; we, as an idustry see quite the opposite to be true.

As an industry, we possess the necessary skills and the necessary financial incentives to launch an industry sponsored and controlled uplinking package created for the singular purpose of insuring our own long-term survival. Whether such a program is funded by some form of pass-through taxation on total system sales, by voluntary subscription, or by corporate funding from larger OEMs such as Uniden, STS, and others is not important at this point. Recognizing that we, as an industry, must do something positive to recapture public confidence in the long-term desirability of home satellite systems should take precedence over all other considerations.

The time for urgent discussions, negotiations, and detailed studies is now; while there is still enough activity within the industry to spark the necessary resources into action. We invite your comments.

1/ At this time, there is a legal problem with allowing superstation signals for WTBS, WGN, KTVT, WPIX, and WOR to scramble. These signals are satellite transmitted by intermediate firms called common carriers. FCC rules inhibit common carriers from modifying the signals they receive and retransmit in any way; perhaps including scrambling of the signals. Furthermore, US copyright laws prevent payment by individual homes for superstation signals. The net effect of this impasse is that while the signals may be scrambled, special legislation will be required to unscramble them. For the immediate future, it is unlikely that any superstation signals, scrambled for cable delivery, will be unscrambled for home delivery. SPACE's reaction to this is to sue the common carrier and perhaps the station itself. More appropriately, new legislation is required in Congress.

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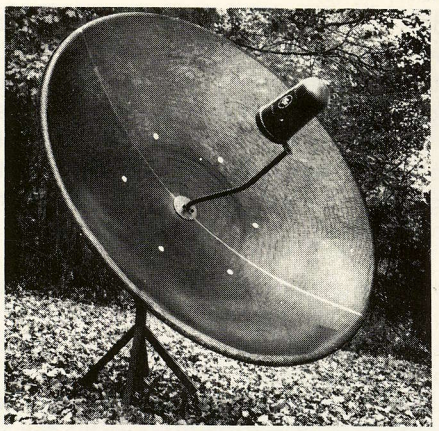

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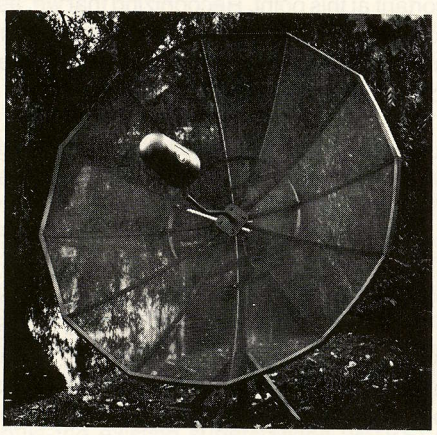

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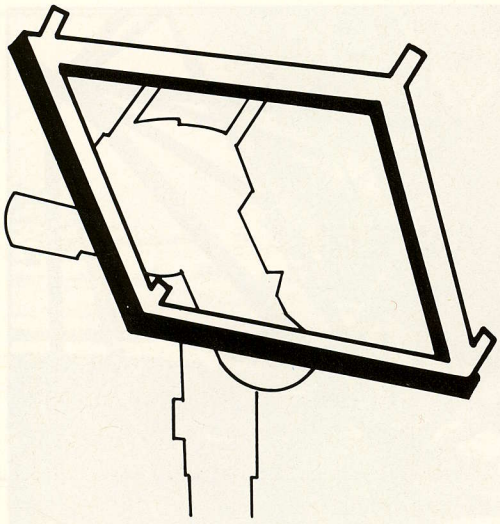


Reassessing Mounts

By Bob Crean

MOUNTS

With all the choices the satellite television dealer has to make today regarding receivers, LNAs, feedhorns, antennas, etc., one might think that the choice of a mount to support the antenna is of little or no consequence to the success (both operationally and financially) and durability of an installation. Because more and more mounts are coming packaged with the dish, a selection of a mount is nonexistent—the dealer simply selects the antenna he likes (for one of any number of reasons) and takes the mount that the antenna manufacturer supplies.

We hope to show that getting involved in looking closely at mounts and taking their design into consideration when purchasing a system for resale can pay off both in the short and long term. We hope to show that all mounts are not created equal and that even dishes with excellent reputations can have substandard mounts supporting them. While the immediate results of giving mount design and installation a closer look may not be as readily apparent as that of putting a hotter LNA on a system, or using a special feed, if you have ever gotten a callback that goes, "It's good on Satcom 4 but not on Satcom 3," you have learned that in the long run the system is only as good as the mount that supports the dish.

So, we will address the whole works starting from below the ground up, including a discussion on sites, earth types, use of concrete, and continue upwards to fastening the mount to the foundation, determining what goes into a good mount, and end with a discussion on different types of mount design.

The Site

When first approaching an installation site, most dealers naturally cast their eye through the approximate location in the sky where the Clarke orbit resides from their position. For those in the west, there is usually a little less concern than for those in the east, who try to verify that Satcom 3 or Galaxy can be seen low on the horizon to the west-south-west. Once it is determined that there is one or more locations on the site suitable for an installation, such issues as whether the customer minds looking at the dish come into play, as well as things like minimizing cable runs.

This is the moment when considerations affecting the mount should be addressed. One of these considerations is soil type and geography. Is it dirt? How deep? Is the soil very dense? Or, perhaps too dense (shaley, or worse yet—plain rock)? If it's loose, is it sandy or gravelly? If the site must be on a slope, is there proper drainage? Are there signs of erosion or slumping? If it's rock, what kind? Can it be broken apart easily, or is it solid?

All of these questions will usually be answered more easily after you have done a few installations and you learn which installations you are continually called back to because of earth problems and considerations. Some guidelines are obvious: Try to select a site that is level, protected from the prevailing winds, in deep, firm, compacted earth. Avoid rock, unless there is a level spot on which to work (and remember, rock is not the end of the world as far as an installation goes). Avoid loose, shifting, sandy terrain. Avoid the bases of large hills where runoff, or groundwater might cause slumping (or freezing) problems.

There are three basic types of ground mounting options in use today in the industry. The installation in good firm soil where going to the required depth is not a problem is the first. The second involves weak or loose soil, or the situation where rock is hit before the required depth is reached. The third is where all you have to work with is rock. Let's take them one at a time and look at some of the considerations that affect the success of the installation.

The "Deep Plug" Post Mount

Where there is plenty of good firm soil, most installers simply auger, backhoe, or manually dig a big hole and place a pipe into the hole, and fill it with cement. Occasionally, Sono tubes or other types of forms are used, although the former are expensive and only necessary if the integrity of the earth around the cement is not good. Other types of forms such as a 55 gallon barrel with the ends cut off work equally well.

There are two major considerations here: How deep a hole

and how much cement? There are probably as many answers as there are dealers in the country. To gain a foothold in properly assessing the answers, one must consider the size, weight, and construction of the dish, the vulnerability of the site to wind or frost, and last, but not least, the relative benefits of 99.9% security that a callback will not happen versus the cost of digging the hole, mixing, and placing the cement (not to mention the cost of the cement itself).

There is little question that if you place enough concrete, the dish and mount will disintegrate before the overturning moments will affect the foundations. The same cannot be said about frost, as even enormous quantities of improperly placed cement can be moved by this silent force. Discussion in a moment for those that need to deal with frost.

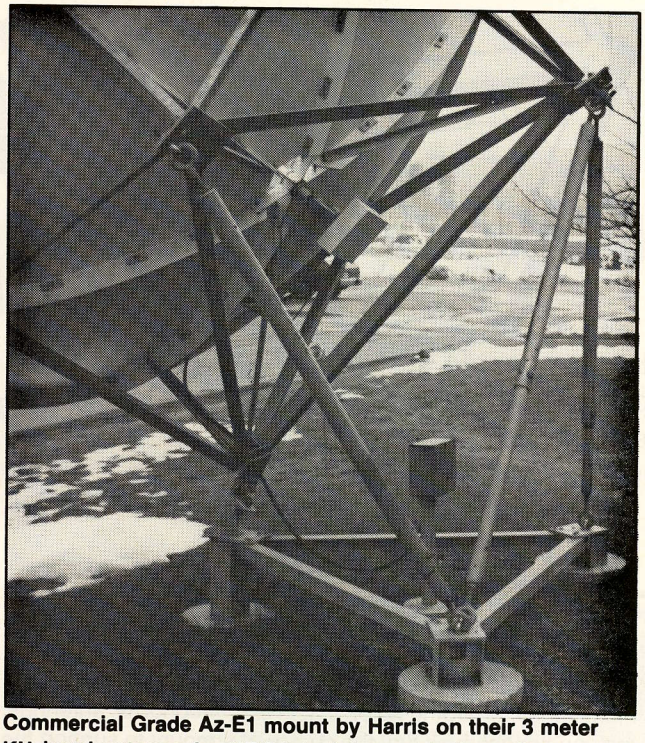
The thing that determines whether forces applied to the dish or mount will move the assembly is best explained by a little physics lesson. First some terms: A "moment" is defined as a force acting on an object through a lever arm. The lever arm is the element that carries the action of the force to the resistance to that force. For some simple examples of this as applied to mounts, wind is the force acting on the dish, the mount, and the post supporting it. The lever arm is the post itself, and the resistance to the force is the earth pushing back on the side of the "plug" of cement which holds the post. There are actually two forces acting in this fashion (those engineers reading this will take exception to this gross simplification: there is a continuous field of forces at every point of contact between the cement plug and the earth). Without getting carried away with the theory of why a dish may or may not come down in wind, we can deduce the following guidelines in determining how deep the hole and how much concrete:

1) The bigger the dish, the deeper the hole and the more concrete.
2) The heavier the dish, ditto.
3) The taller the post, ditto.
4) The more remote or difficult to access or maintain, ditto.

This last item may strike some as being a little curious. The trade-off mentioned above concerns the consequences of movement of the mount versus the cost of assuring that it will never happen. Experience is the best teacher, but as a rule of thumb, if prevailing winds are of average strength and the possibility of storms, tornadoes, etc. is minimal, one would unlikely be called back to an installation (for mount movement) by using a minimum of ½ yard of cement for a 6 foot dish, 1 yard for a 9 foot to 11 foot dish, and 1.5 to 2 yards for a 12 foot to 16 foot dish. Using the rules above, mesh dishes would require less cement than their fiberglass size equivalents, because they have less mass, which is a factor in oscillation (discussed below). Well protected sites can get away with less concrete than exposed, windy locations. High traffic areas (near a parking lot, for example) need more (yes, it is possible that a vehicle might hit the dish).

This business of assuring that the post never moves out of plumb is one that can be addressed by simply designing the means to adjust the plumbness into the mount. Several mount manufacturers, including ourselves, have recognized this as being an enormous aid to the dealer who does for one reason or another have to go back to a site to readjust the mount track properly, unless the pipe is bent or removed and replaced.

Below, we describe a simple way to avoid having to make absolutely sure nothing moves once the post is set in the concrete. Let's discuss the second type of installation that involves loose or sandy soil.



Commercial Grade Az-E1 mount by Harris on their 3 meter KU-band antenna for NBC television network; notice separate jack screws for azimuth and elevation.

The Pad Mount

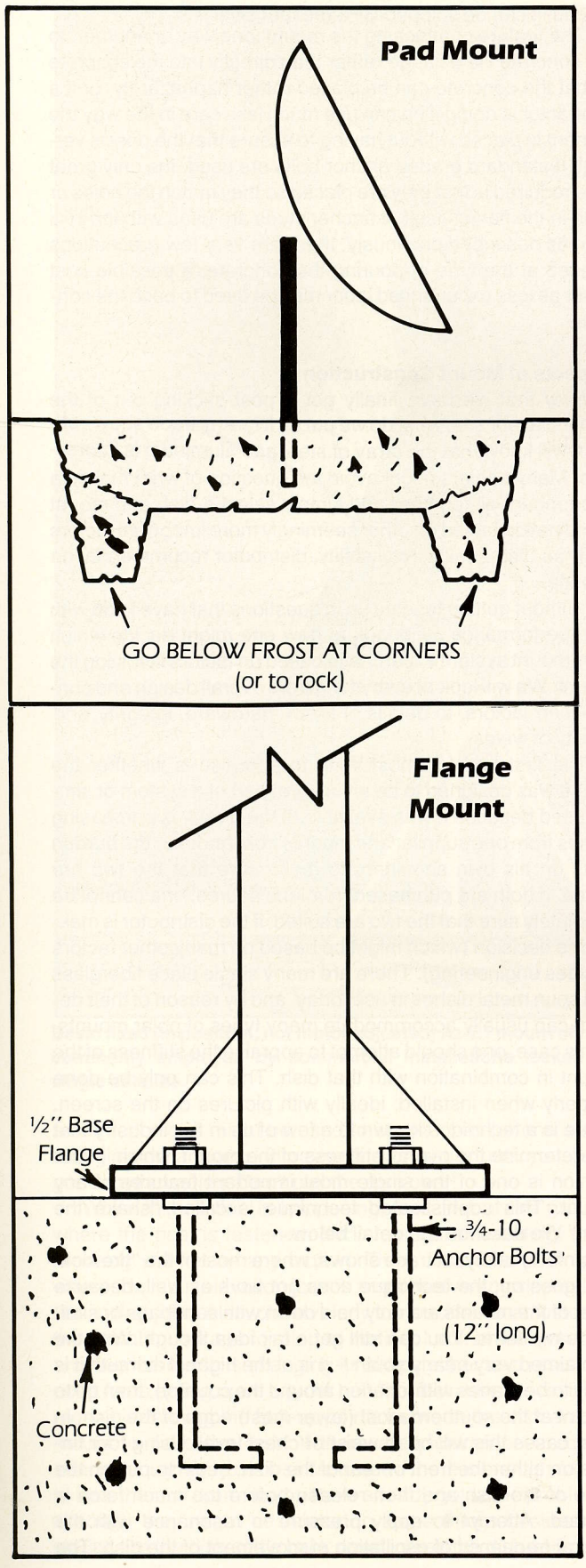
The second general type of mount installation involves soil that is either too loose to excavate successfully, or is too shallow over bedrock. A third reason for using this type of installation is the case of swampy or spongy earth.

Resistance to the forces applied on a dish may be resisted by maintaining the same mass of concrete as in the deep plug method, but redistributing it outward from the post. In the case of a tripod assisted mount (similar to the ones Channel Master produces) or the integral tripod mount under the ADM series of antennas, this type of pad may prove the simplest to install regardless of soil condition.

The depth should be maximized as is reasonably practical, and the size of the pad should be such that perhaps 25% more concrete is used per given size and construction of dish as noted above. This is because we are relying solely on the mass (and therefore gravity) of the pad to resist the overturning moment applied by wind acting on the dish and mount.

In the case where bedrock is struck within 12 inches of the surface, it is advisable to increase this mass by building forms above the ground plane to form a pedestal effect. A slab much thinner than that becomes more difficult to pour properly without reinforcement and the installation risks fracturing of the pad itself during severe stress on the mount and dish.

It should be noted carefully that this type of installation, if used in the northeast, or other areas where frost is a problem, rarely puts the base of the concrete pad below the frost line and should be avoided unless the technique described below to mount the post to the cement is used. This greatly simplifies



the correction of a tracking problem due to shifting of the foundation.

Mounting on Rock

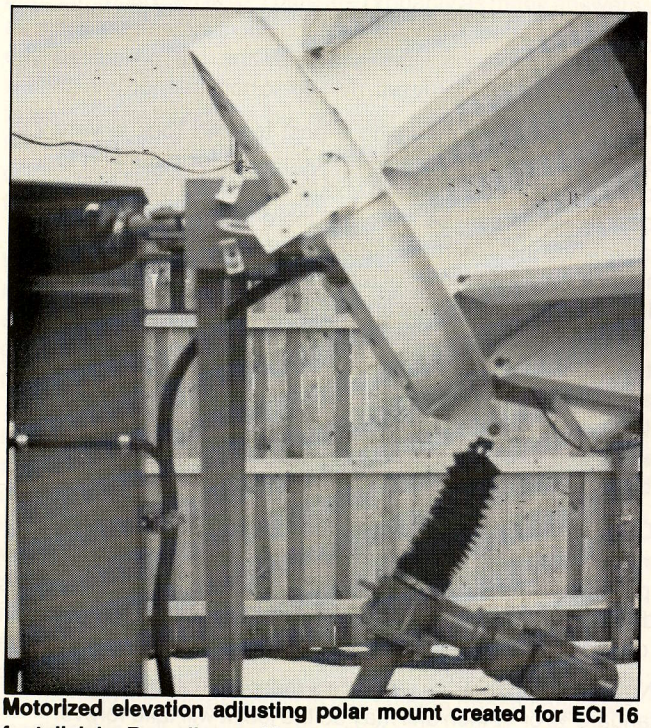
The technique for mounting a post to solid rock is very much the same as the technique suggested for mounting to concrete. The first consideration should be to avoid it altogether if possible, as it can be tricky. If there are no nearby alternatives, the installer must determine the structural integrity of the rock itself. Examples of rock types that are at the top of the list would include granite and gneiss, and most other igneous rocks; limestone and sandstone are not that bad if they are tight—that is, they don't come apart easily. The installer can usually tell by simply finding an outcrop pins of the rock and beating on it with a sledge hammer. If the outcropping breaks off easily and fractures into small pieces, the installation may not be advisable.

Once the installer determines that the rock is structurally sound, a flat section is located where four anchor studs may be placed. Generally, in very strong rock such as granite, studs 5 or 6 inches long may be sufficient. The softer the rock, the deeper one should attempt to penetrate.

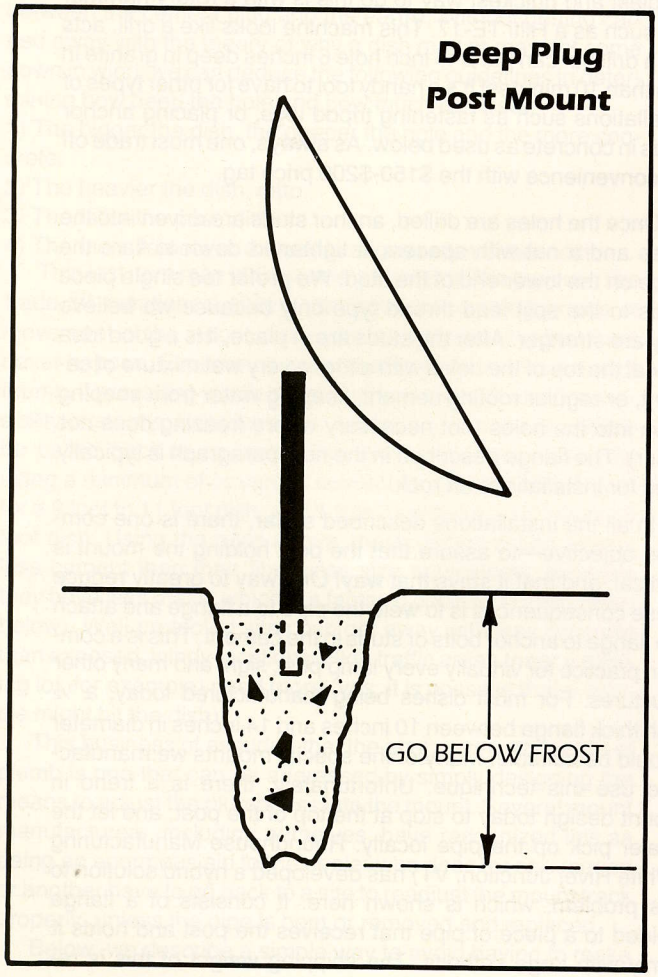
Now, how to penetrate it? While a masonry (carbide) bit on a standard ⅜ or ½ inch drill may do the job, it will take forever (let's see, at $12.50 per hour, that would be...phew!). The simplest and quickest way to do this is with a rotary hammer drill such as a Hilti TE-17. This machine looks like a drill, acts like a drill but can put a ¾ inch hole 6 inches deep in granite in less than 10 minutes! It's a handy tool to have for other types of installations such as fastening tripod legs, or placing anchor studs in concrete as used below. As always, one must trade off the convenience with the $150-$200 price tag.

Once the holes are drilled, anchor studs are driven into the holes and a nut with spacers is tightened down to flare the piece on the lower end of the stud. We prefer tee single piece studs to the split lead thread type only because we believe they are stronger. After the studs are in place, it is a good idea to seal the top of the holes with either a very wet mixture of cement, or regular roofing cement, keeping water from seeping down into the holes (not necessary where freezing does not occur). The flange described in the next paragraph is typically used for installations on rock.

In all the installations described so far, there is one common objective—to assure that the post holding the mount is vertical, and that it stays that way! One way to greatly reduce these consequences is to weld the pipe to a flange and attach the flange to anchor bolts or studs in the cement. This is a common practice for virtually every lamp post, sign, and many other structures. For most dishes being manufactured today, a ½ inch thick flange between 10 inches and 14 inches in diameter should be suitable. Many of the special mounts we manufacture use this technique. Unfortunately, there is a trend in mount design today to stop at the top of the post, and let the dealer pick up the pipe locally. Roundhouse Manufacturing (White River Junction, VT) has developed a hybrid solution to this problem, which is shown here. It consists of a flange welded to a piece of pipe that receives the post and holds it firmly with large setbolts. The shipping weight of this is re-



Motorized elevation adjusting polar mount created for ECI 16 foot dish by Roundhouse Manufacturing.



duced; it can be shipped UPS inexpensively.

The feature of attaching the mount, one way or another, to the concrete via a flange rather than directly into the concrete is that the concrete can be placed rather haphazardly, or if a contractor is doing it he can use much less care in the way the cement is placed without having to assure that the post is vertical. If standard graded anchor bolts are used, the only great care required is that they are placed so they match the holes or slots in the flange itself. If anchor studs are used with the Hilti gun, as described previously, there are very few precautions needed at the time of pouring the concrete, a possible cost saver as less expereinced labor may be used to pace the concrete.

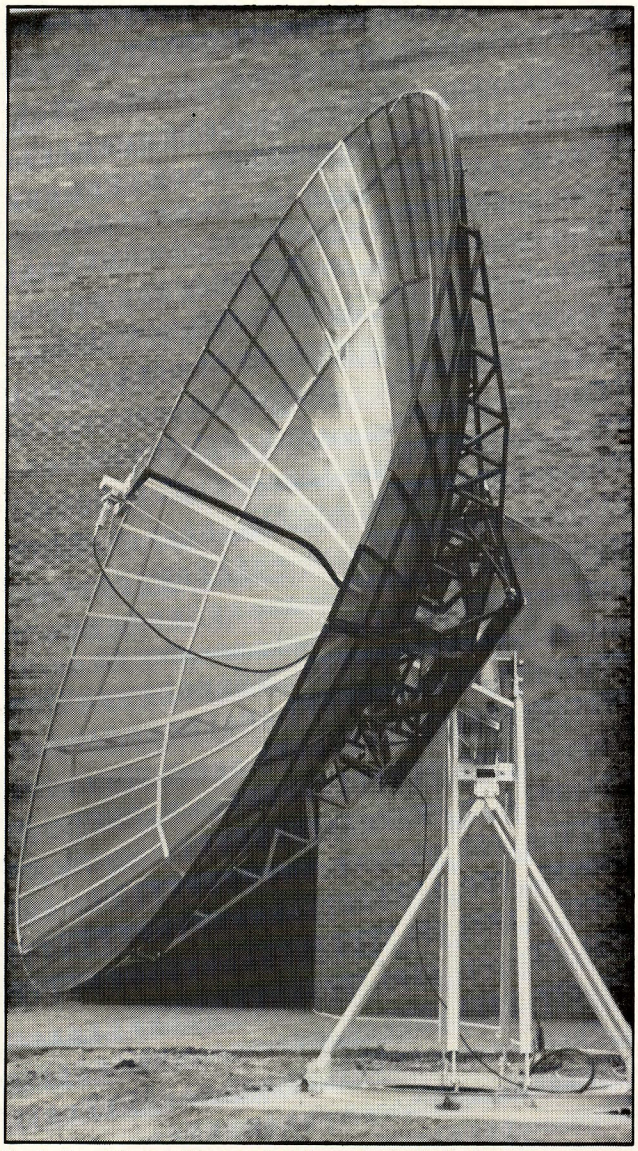
Aspects of Mount Construction

Now that we have finally got a post sticking out of the ground at our site, what do we put on it? Any trade show veteran will know that the array of steel and aluminum is impressive. Many dealers might avoid the question of what makes a good mount all together and simply select a dish and mount combination based on other seemingly more important factors such as dish quality, availability, distributor recommendation or price.

Without getting tangled up in questions that have to do with dish performance, let's look at how one might decide which dish-mount system to purchase based on factors involving the mount. We will look at everything from overall design and construction factors, to details of finish, hardware, integrity, and quality of welds.

The first and foremost thing to appraise is whether the mount was designed to be an integral part of a system or simply used because it was available. If the dealer is purchasing dishes from one supplier and mounts from another, the burden rests on his own shoulders to make sure that the two are suited. If both are purchased from one source, one cannot be absolutely sure that the two are suited, if the distributor is making the decision (which might be based on many other factors besides engineering). There are many single piece fiberglass and spun metal dishes in use today, and by reason of their design, can usually accommodate many types of polar mounts. In this case, one should attempt to appraise the stiffness of the mount in combination with that dish. This can only be done properly when installed, ideally with pictures on the screen. There is a technique known to a few of us in the industry that will determine the overall stiffness of the mount, which, in our opinion is one of the single most important features of any mount. This sophisticated technique is called "shake the dish." We describe it in detail below.

Unfortunately, at trade shows, where most of the "tire kicking" goes on, the technique does not work as well, because most of the mounts are only held down with sandbags or similar heavy items. You can still get a fair idea though. With the dish aimed very nearly south -- it is at the highest azimuth it is likely to be (varies with location around the country), then go to a point at the southern most (lower most) edge of the dish. In most cases this will be at waist or chest level. Using four fingers on either the front or rear of the dish, begin to pull on the edge of the dish and then release before too much force is exerted. Attempt to apply pressure in resonance with the natural frequency of oscillation of movement of the dish. The



Basic fixed (in position; not motor adjusted) Az-E1 mount of type commonly employed by commercial installations locked on single satellite.

same technique might be used to start a child (or one's self) swinging on a swing. Increase the pressure until you get a good rhythm going. Don't pull the dish over!

While this motion is happening, look first at the ground, where the post is fastened. If it is a secure mounting, there probably will not be any motion. Then, follow the post up to where the main elevation joint is and observe any slop or motion in that joint. Also, observe any turnbuckles or adjustors in the elevation linkage for slop or motion. Look at the dish itself and see if the dish is changing its shape either as a result of a point force acting upon it (your hand) or because the resulting motion is causing the bolt-up points between the dish and the mount to warp the dish. If there are pictures on a screen nearby, you might just observe to see if there is enough motion to lose them. If there is, you have already got some problems, although they might be related to some things besides the mount. Let the dish settle back down; grasp the dish perimeter with thumb and forefinger and apply a gentle, rhythmic motion in a direction tangent to the dish. This direction would be the same as that of a record on a turntable (imagine the dish to be a long play album). As before, gently increase the force and try to match the natural frequency. Inspect the entire mount for looseness of flex. Compare it to the first test and note the precise locations where motion or flex is detected.

Next, rotate the dish on its polar axis to a low satellite (Galaxy from the east coast for example). Move around the perimeter of the dish until you are at a point on the edge that is 90 degrees around from where you were before. That's about a quarter the way around, one panel in a four panel dish or two panels in an eight panel dish for the non-mathematicians among us. At this location, perform the same test as before and note motion about the polar axis. This is where jack slop will be noted if it exists. Observe this carefully and mentally subtract it from mount motion to determine how stiff the mount is itself. Often many things can be done to minimize jack slop.

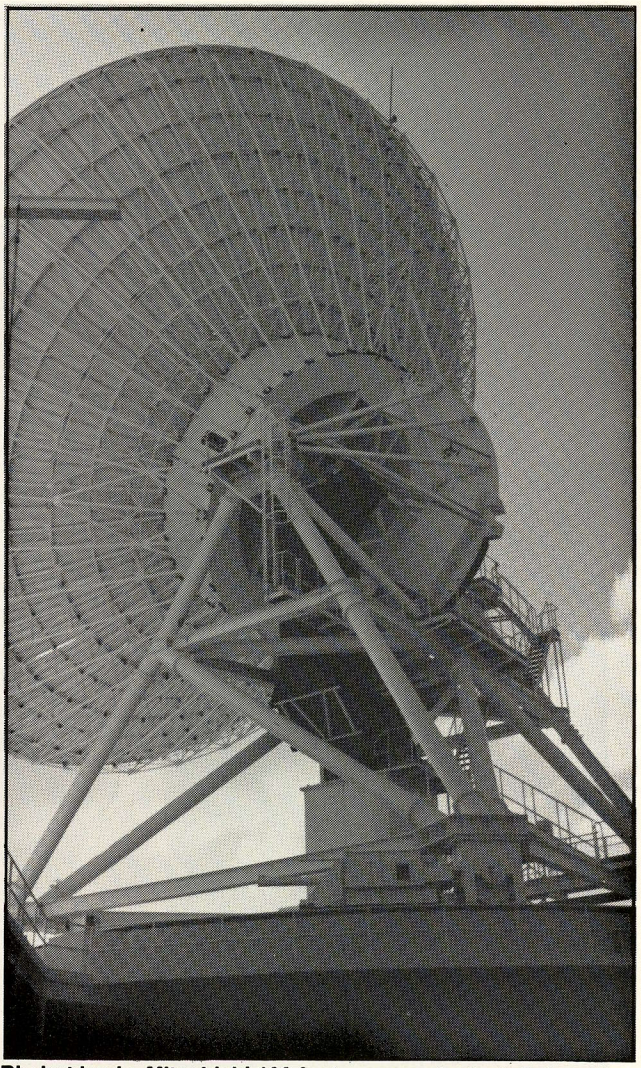
The point of all this "flex and watch" activity is to determine if, given all the realities of the dish/mount system, it does not have much built-in motion. The obvious conclusions can be drawn from this exercise. In general, a dish and mount designed to go with each other from the start have the best chance of providing a stiff system. Some dishes, mesh dishes in particular, even use the mount for assistance in maintaining the shape of the dish itself. The ECI dish is an example of this construction, and it makes for not only a stiff mounting system but integrity of the shape of the dish as well.

Among the more important details to look at in mount construction are the welds. A good weld is stronger than the two pieces of steel joined by it. Mount failures usually happen at a weldment. In many cases, there is no way to know by looking at the weld if it has proper penetration, which is how deep the metal pieces to be joined are fused together. General appearance for uniformity and flatness of welds can go a long way, however, in assuming that the manufacturer had proper QC procedures to assure consistently good welds.

Other details to look at include hardware. Most good quality mounts now include all the hardware the dealer needs to do the installation. Most of the better products on the market include either zinc plated or stainless steel hardware. While stainless is stronger than normal hardware, strength is not usually a factor in most uses of hardware in polar mounts today. Corrosion resistance with stainless hardware is somewhat better than zinc plating, particularly when used in conjunction with aluminum.

A note of caution is in order here regarding the use of dissimilar metals in mount-dish systems. In most cases, it will not pose a corrosion problem, but in very humid conditions or installations near the coast, problems can occur when steel is bolted directly to aluminum. If the system is not properly grounded and leakage across terminals in actuator housings occurs, severe corrosion can happen as a result of these dissimilar metals being in contact with each other. This phenomenon is well known to yachtsmen and every mount manufacturer should have background in this area.

Finish is the last item we will discuss about the overall construction of mounts. The ideal finish for any polar mount, from a durability point of view, is a galvanized finish. Next to that, a zinc plated finish provides the same corrosion resistance (but



Big but basic. Mitsubishi 100 foot commercial installation (Bermuda for Intelsat) uses elevation over azimuth adjustment system. How do you move a 100 foot dish??? Carefully!

the zinc is laid down in a thinner coat than with galvanizing--which is zinc as well.) This disadvantage of standard galvanized or zinc plated finishes is that the color (silver) may not be desirable. Black zinc finishes are sometimes available but are more expensive and an array of galvanized finishes are available to some mount manufacturers, but their cost is very prohibitive.

Paint coatings come next, and of all the powder coatings and baked enamel finishes; they are the most durable. As with all painted finishes, the surface must be prepared perfectly. A scratch in a powder coated paint finish renders it no better than regular paint if the bonding between paint and steel is not uniformly good.

The finish on the mount is usually selected on the basis of what looks good rather than what will last, and that's okay as long as the mount is properly designed with the right amounts of steel in the right places. In all but coastal areas, a totally exposed, properly sized and designed mount might last a great deal longer than many other parts of the system. It might look like a rust bucket, but will be structurally sound.

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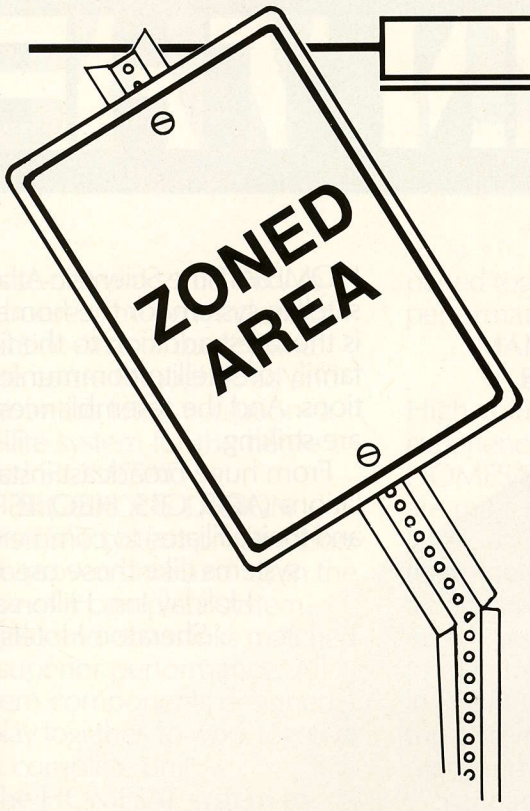

Zoning – A Product Of Your Business

by Thomas Tomasi

This report has been written to cover the general aspects of zoning laws and those regulations that effect the installation of satellite dishes. The rules themselves are chaotic. For the most part, they are frequently inconsistent or inadequate and offer no clear guidance. The question remains, who shall oversee the local municipalities, state legislatures, and courts? These questions, at this point, have not been resolved.

In March of 1985, the word came from the US Federal Communications Commission requiring 'hands-off regulation' by local governments concerning satellite dishes. Some preliminary statements from the FCC, regarding their intentions to control zoning of dishes, stated that any existing municipal regulations against dishes would be made invalid unless "said regulations have a direct and tangible relationship to reasonable, valid, demonstrable, and clearly articulated health, safety, or aesthetic objectives." Among the points to be discussed here are the current theories on zoning, the principles referred to in definition form, the possible changes which should be made in the rules, and the supporting material for zoning request, necessary for proposed changes.

Because you are, or will be, like countless hundreds of other dealers today, personally affected by your local zoning restrictions, the restrictions can mean all the difference between the number of satellite systems you may or may not sell. Whatever the dispute may be, I have set some clear guidelines which have worked for me. Following these guidelines combined with improvisations, (in accordance with your particular municipal regulation), you will be able to effectively pursue a step-by-step foundation and procedure.

What Is Zoning?

Zoning is a local ordinance that limits how your customer's property may be developed and used. To view zoning as a regulation of uses and development standards is not enough to tell what it is however. Private deed restrictions do the same thing. What basically distinguishes zoning from private deed restrictions is that zoning is based upon the police power of government. The fact that zoning is based upon police power has much to do with its form and content. Because police power has been broadly used, it has been implemented with safeguards by both state and federal constitutions and state statutes. Because exact limitations differ from state to state,

Fourteenth Amendment Protection:

"No state shall make or enforce any law (which)... without due process of law (shall)... deny to any person the equal protection of the laws."

they generally include the following:

1) Any regulations based upon the police power must have a clear and reasonable relationship to the public's health, safety, and welfare.
2) The police power must not be used to "take" private property without just compensation. What constitutes a "taking," however, is not clear. Furthermore, the "taking" of "rights of use" from property owners has also been the subject of much contention. This conflict between the rights of property use and the undue restraint of the rights, regarding, for example, the placement of a dish reflector on said property, has always been the subject of debate on the levels of state constitutions versus United States Consti-

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High volume manufacturing experience is a plus with the new HOMESAT systems. Antennas are mass produced using the latest, sophisticated stamping techniques. And system electronics are subjected to the same quality tests and standards used to maintain performance levels in Scientific-Atlanta low cost set-top terminals and U.S. Government and military contract work.

Standards have to be high where performance is critical. And there are no higher standards than those for HOMESAT– and Scientific-Atlanta.

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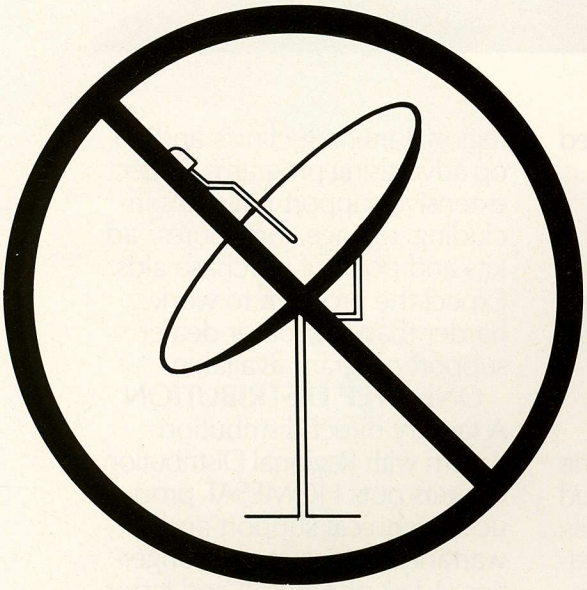


tution.

3) Regulations must comply with "equal protection" and "due process" requirements of the Fourteenth Amendment to the United States Constitution and with similar requirements of state constitutions. In part, the Fourteenth Amendment reads as follows: "No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person life, liberty, or property, without due process of law; nor deny to any person within any jurisdiction the equal protection of the laws."

The "equal protection" clause is responsible for the basic concept of zoning. An ordinance that regulates each parcel of land in a different manner would represent a flagrant violation of this requirement. On the other hand, one that attempted to apply the same regulations uniformly throughout the community would ordinarily be unworkable. To my knowledge, there are minor exceptions whereby very small communities have been known to get along with only one zoning district, for example, single family-residential.

Zoning is a compromise between the concept of treating each parcel differently and the concept of complete uniform treatment. It groups similar or compatible uses into classes in the text and similar properties into classes on the map. Although regulations are different between classes or districts, they are, in theory, uniform with any one district.

The zoning test (statement of purpose) reflects a concern with constitutionality. It usually begins with a preamble full of generalities intended to justify what follows as having a "clear and reasonable relationship to the publics' health, safety, or welfare." The statement of purpose is usually followed by several pages of definitions of the terms used in the ordinance. These definitions should be understood and studied carefully, because some definitions are highly specialized. Persistence may be needed in finding particular definitions. Along the way in this report, I will define those frequently used definitions found in most texts.

After the definitions, the typical zoning text contains a section listing the districts into which the community is divided. These are usually identified by name and symbol, but sometimes they are accompanied by descriptions and statements of purpose. The number of districts included varies widely according to the size and mix of the community. The section describing the districts also contains several other provisions referring to the zoning map and interpretations of boundaries.

Districts And Permitted Uses

Most uses listed, as permitted in a particular zoning district, are usually known as "uses by right." If a home owner complies with all other requirements, then there should be no question about the issuance of a permit for one of these uses. Recently (5-10 years), a new kind of use appearing with increasing frequency is conditional use. Conditional use is usually permitted only after a public hearing and approval of the board or commission. Conditional use also has been referred to as Special Use Permit, sometimes granted or denied by the city council. Example, I make reference to ordinance #1053, Section 36 of the City of Plantation, Florida, which makes reference to conditional use as follows: "All disc or dish antennas designed to receive transmissions of television signals from communication satellites are to be permitted on a 'conditional basis,' with such conditions and limitations as council 'sees fit' to impose in addition to the following 'minimum' requirements." My reply to this paragraph (which was one of many) was as follows; the subject article XVIII (New Subsection C) may act in effect, as a complete bar to viewing satellite signals by residences "subject to" a "nondefinite" and "unpredictable" conditional use, with conditions and limitations imposed as the council sees fit.

Special use permits allow conditional approvals in situations where the public is allowed to comment prior to approval.

For the zoning novice who tries to comprehend the rationale underlying the myraids (indefinite number) of uses, rights, and districts, the following cautions may be helpful:

1) A zoning ordinance is seldom based on a single comprehensive set of goals, objectives, or policies.
2) It is common for a community contemplating a new zoning ordinance, or an amendment to said ordinance, to use language, standards, and concepts found in the ordinances of other communities without always having a complete understanding of the rationale involved. For example, recently, this past May, the city council for Sunrise, Florida, revised its ordinance pertaining to height restrictions of antennas, set backs—rear and side yards, and maximum allowable diameter antennas. Because of the pressures , I

David Lyman distributes satellite television antennas in Salt Lake City Utah. He also serves as a volunteer leader of an Explorer Scout Post.

One of the goals of the Explorer Scout program is to help youths of high school age share experiences in areas of specific interest such as "vocational exploration." So when three scouts told David they were "very interested in satellite antennas and wanted to learn all about them", he was naturally delighted.

The young Explorers quickly qualified as part-time, then full-time members of his installation team. Highly skilled. Very proficient. So much so that Lyman was soon in touch with David Johnson, the President of Paraclipse, with a suggestion.

Why not give these very talented, high-potential young men a chance to join a Paraclipse crew for a "Major install"? Like the one that Johnson had said would soon take place at the NASA Space Facility at Cape Kennedy, Florida.

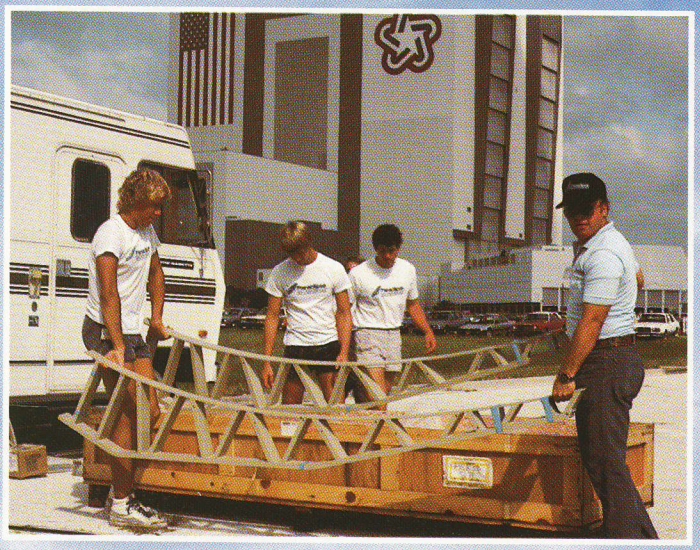
Such a trip, Lyman felt, would help guide these youngsters into "jobs of the future that probably haven't even been invented yet."

They would gain self-reliance and resourcefulness by working beside, and communicating with, older, more experienced professionals in their field of interest. And yes, in the Explorer Scout tradition, by installing antennas that would be contributing to the success of America's space program, they would be providing a "community" service, with the community, in this instance national rather than local in its scope.

David Johnson, of course, shared Lyman's enthusiasm. On September 24, 1985, Brian Weston and David Witbeck, both 18, and Shane McKnight, 16, boarded the Paraclipse plane for Cape Kennedy. Working with David Johnson, David Lyman and members of the Paraclipse technical staff, they helped to install four antennas at various NASA facilities.

TURN PAGE FOR MORE PHOTOS

KENNEDY SPACE CENTER

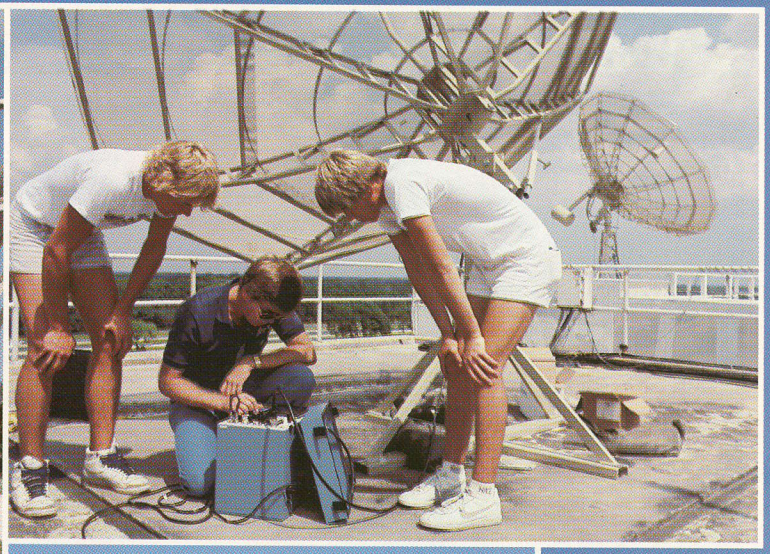


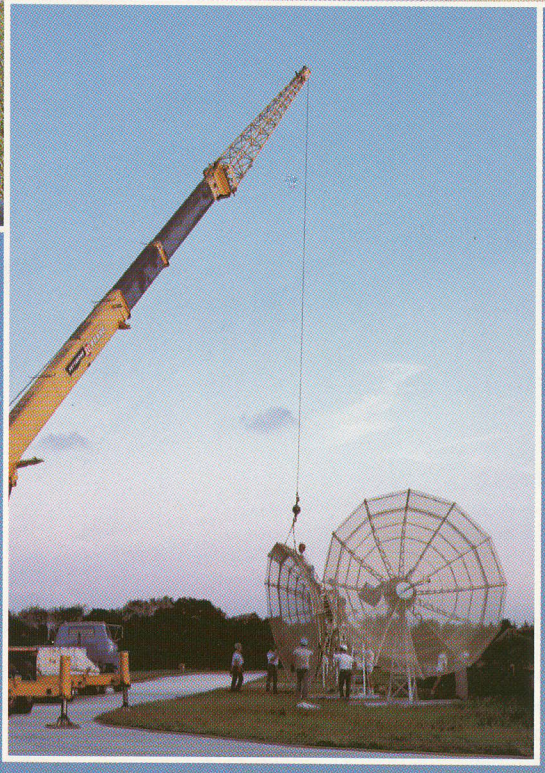
With the Vehicle Assembly Building as a towering backdrop, Dave Witbeck, Brian Weston, Shane McKnight, and David Lyman uncrate a 4.8 meter.

With two units installed on a previous trip, there are now six Paraclipse antennas in use at Cape Kennedy. They handle a variety of tasks. From monitoring the weather to facilitating network television coverage of shuttle launches. From training programs to teleconferencing and providing our astronauts with the wide choice of entertainment that only satellite television can offer.

For their valued help in making this happen, our thanks to three very good scouts.

At the "Antenna Farm", David Witbeck, foreground, and Brian Weston attach a ring truss to a 4.8 meter.

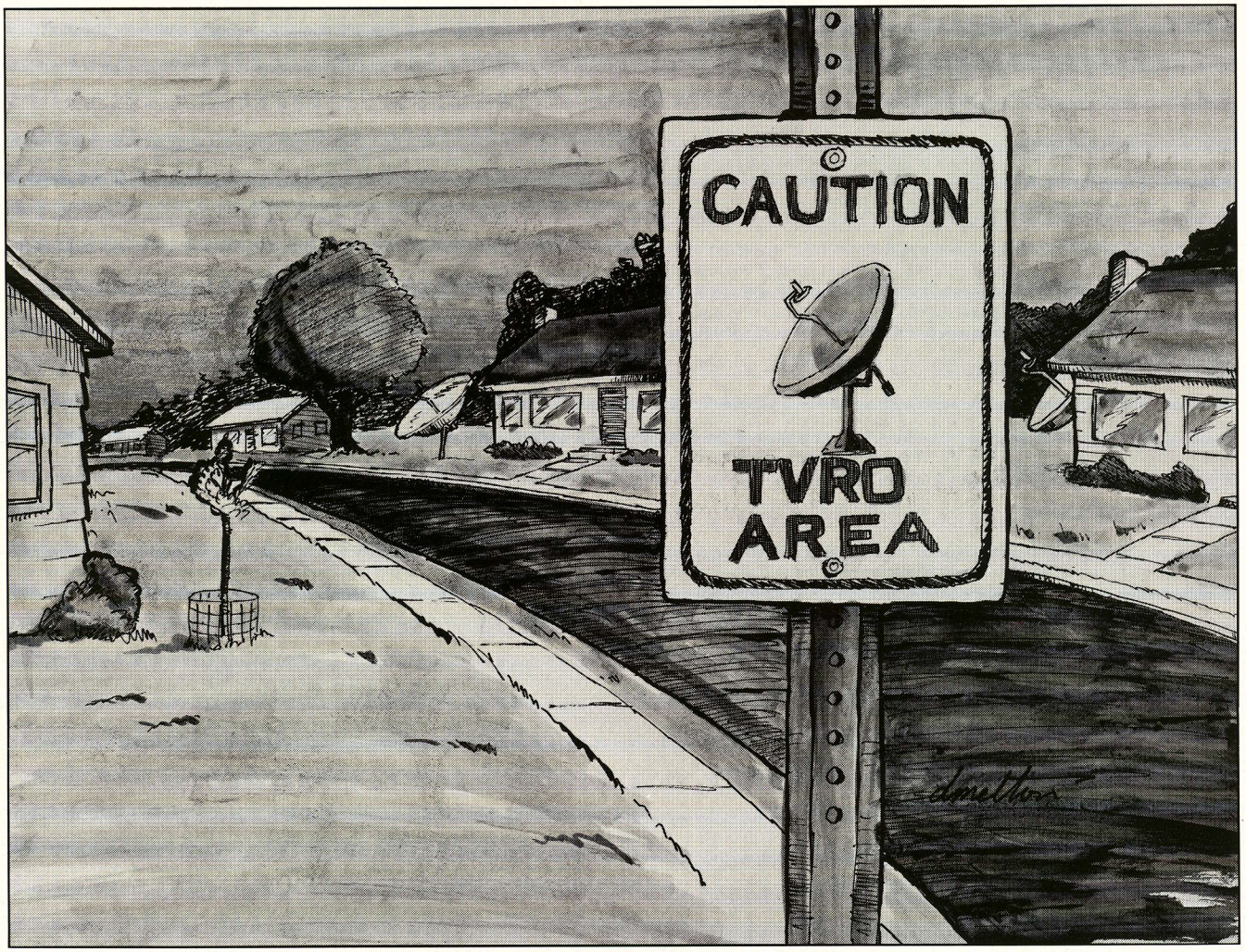




At the Antenna Farm, a new 4.8 meter takes its place near another installed in 1983.

On the job training on roof of the Central Instrumentation Facility. David Johnson uses a spectrum analyzer to fine-tune a 3.8 meter with Brian Weston, left, and Shane McKnight observing.

PIONEER MEMBER OF SPACE



as well as local constituents in the satellite business, imposed, we were able to make council members aware of certain language standards, and concepts that had already been established in the city of Coral Gables; therefore, during the council meeting, the City Attorney had made reference to the standards previously set one year ago in Miami, Florida.

3) In short, there is much in a typical zoning ordinance that is there because it is there, and arbitrary as it may be, it will remain there until either adequate substitutes are found or the arbitrary provisions are deemed unnecessary.

Meeting With The Neighbors

Before we get involved in how to carefully prepare for a successful hearing, few things are of greater help to one's cause at a public hearing than support from neighboring property owners. In many cases, the attitudes of neighbors are the deciding factor. The dealer should inform his customer, or maybe even assist him, to approach the neighbors well in advance of the hearing. A determined and well planned effort should be made to explain the proposed installation and to modify it to overcome their objections. The proposal should contain brochures on the antenna (to overcome any aesthetic objections), engineer drawing (to show antenna being safe and structurally sound), and a property survey drawing to show exactly where the antenna will be placed in relation to the neighbor's view. Even if their approval cannot be obtained, then perhaps their opposition can be blunted. If they do have strong objections, they may not even come to the public hearing. The less opposition at the hearing the better!

Neighbors can be approached in several different ways; as individuals, families, organized groups in formal meetings, or as small informal groups. Each customer and/or dealer will have to decide what approach or combination of approaches to follow in a given situation. Regardless of the approach used, one meeting is usually not enough. My suggestion is that the customer and/or dealer should start their meetings far enough in advance of the public hearing so that several repeated sessions with the same group can be scheduled if necessary.

Remember, when meeting with neighbors, be candid and honest. They have probably been subjected to numerous other zoning battles. In this case, they may have good reason to be skeptical of fancy architectural renderings and shady promises. However unfair it might seem, a dealer can suffer because of the bad faith shown by previous dealers in the vicinity. A dealer has no control over other dealers but he can

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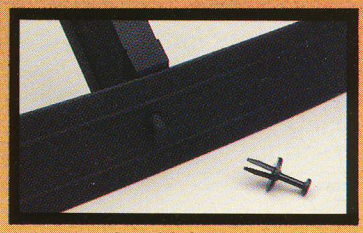

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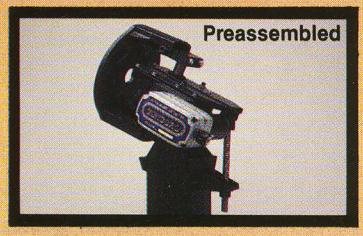

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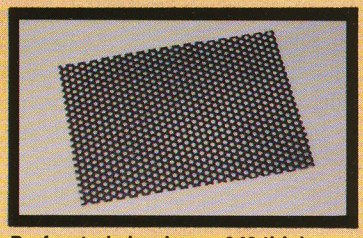

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Dealers must prepare themselves and their customers for public hearings in advance; dealers must be prepared to defend or sidestep problems created by other satellite retailers in the community.

look out for his own reputation. Support or opposition by neighbors in future satellite dish zoning matters could well hinge upon how well a dealer keeps the promises he makes. Unrealistic promises should not be made.All promises should be honored unless they can be renegotiated.

Scouting The Hearing

Prior to a hearing, a dealer and customer should be scouting for information about the mechanics of the hearing. The kind of information that a dealer/customer should be seeking are the rules and procedures to be followed. Some of these might be learned from asking local officials or attending an actual hearing. Besides the formal rules, there may be more informal standards or customs that ought to be adhered to, if the dealer/customer expects to be successful. Procedures for voting, the time allotted for the dealer/customer presentation and rebuttal arguments, and the weight given to the opinions of nearby neighbors can vary from place to place. There is really no adequate substitute for observing rules and procedures than to attend an actual hearing.

Questions A Dealer Should Ask

1) Is voting done openly, or in executive session?

2) Is voting done immediately after each item or is all voting put off until all applications have been heard?

3) How long do hearings generally last?

4) Is an item scheduled usually heard on time? Is it not heard until several hours later? What are the possibilities that it might be heard earlier than scheduled?

5) If chances of approval do not look good, can your case be postponed or withdrawn "without prejudice"?

6) If this is not possible, then how long will you have to wait before reapplying?

7) Does the applicant ordinarily speak for themselves, or do they have professionals speak for them? Which technique appears more effective?

Final Preparations For The Hearing

1) Make sure that you as the dealer expert can be present and heard. Situation: Recently I was confronted at a public hearing along with my customer by the opposing party (cable franchise). Because the council was not knowledgeable regarding satellite systems and the dish size necessary in south Florida, the council was literally brainwashed by the cable franchise that a 40 inch parabolic dish antenna was satisfactory. By immediately recognizing their motives behind this ludicrous recommendation, I was able to immediately jump on the situation. Their intention was to recommend to the council that a 40 inch dish would suffice, and then absurdly they recommended KU-band. By submitting to them factual data concerning the nonfeasibility of KU-band at this time and a written endorsement from Mr. Bob Cooper of Coop's Satellite Digest, the decision was finalized in our favor.

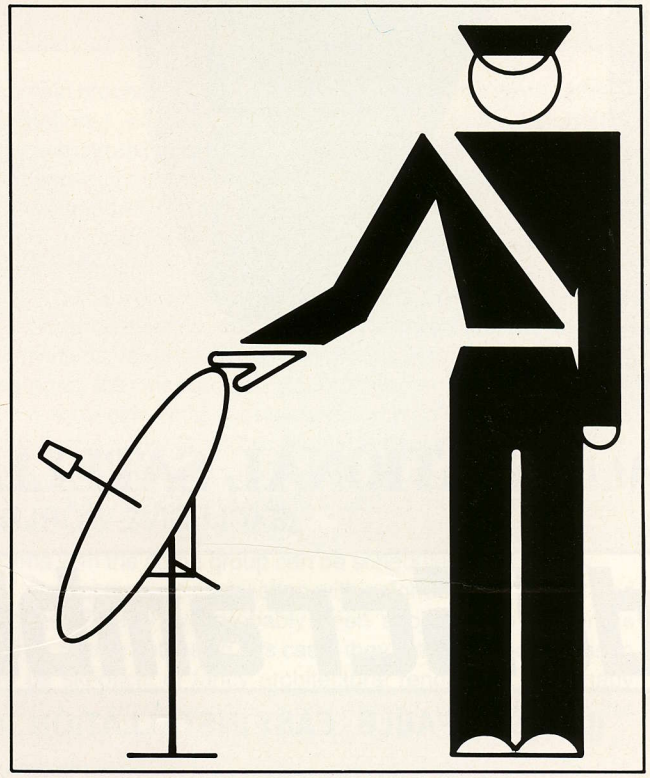
2) Decide who is to say what. If you are aware that misinformation about satellite equipment has been spread throughout the community or a council member has some technical knowledge receptive to your statements, bring along your best technician.

3) Rehearse the presentation so that it will be concise and within the time limits.

4) Anticipate the questions and objections and decide how they are to be answered.

The Dealer's Conduct At The Hearing

Because two public hearings might be necessary, one before the planning advisory board (commission) and the other before the council, the dealer should avoid blowing all of his ammunition on the first one. The dealer should always keep something in reserve. Preparation for the hearing should be thorough and the dealer should be able to approach it with confidence. Showing confidence to all present can give the dealer a psychological advantage. However, the dealer's confidence should not come off as arrogance. A dealer's approach should be one of quiet forcefulness combined with



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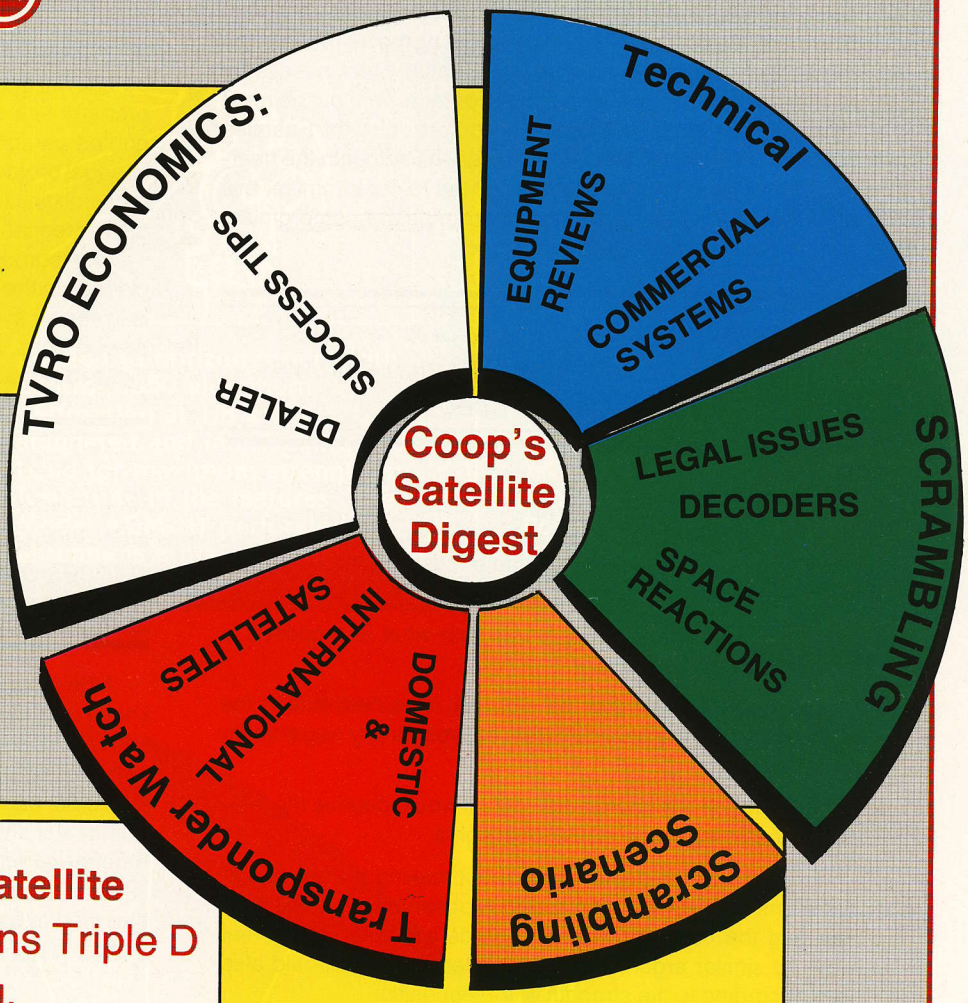

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courtesy. The dealer should always keep in mind that his appearance at a particular hearing may not be the last one before the same group of people. The dealer might find it necessary to alienate some of his opposition in order to win, but he must make sure it is absolutely necessary before doing so. Enemies should not be made lightly. The dealer should begin the hearing with an open-mind and a willingness to compromise; this does not necessarily mean that there must be compromise, but the possibility must be recognized.

The city had been literally 'brainwashed' by the cable TV people that a 40 inch dish was sufficient for satellite TV reception.

Justify Your Position

In order to win a hearing, the dealer/customer has to do one of three things;

1) Convince the hearing board that what is proposed is harmless to the community.

2) Convince them that the proposal is so desirable to the community that the public interest outweighs any negative effects.

3) Convince the board that a denial would deprive the resident of basic legal or constitutional rights.

Exactly how the dealer goes about making the above justifications will depend upon previous observations made from scouting the hearing. Different boards will react in different ways to similar arguments. The dealer's tactics should also vary according to the strength of the opposition.

Enemies should not be made lightly; you may be back before the same 'body' in the future. The dealer should have a willingness to compromise.

Constitutional Challenges

1) Substantive due process deals with the manner in which decisions affecting a person's individual and property rights are made, and with the reasonableness and fairness of the regulations. If there is little public gain from the regulation compared to the hardship imposed on the property owner, courts will not allow the application of the regulation on the basis of substantive due process. Example—According to the final judgement made by the Eleventh Judicial Circuit Court, in Dade County (Florida) one of the paragraphs comprising the final decision, reads as follows; "The ordinance banning only satellite television antennas bear no substantial relationship to the public health, safety, morals, or general welfare of the residents of the city of Coral Gables and its objectives as the ordinance is unreasonable, arbitrary, capricious, and discriminatory against owners of satellite television antennas."

2) A denial of equal protection may be argued when it can be shown that the zoning ordinance discriminates between property users without logical basis. In addition to the above quoted paragraph, consider the following paragraph relative to equal protection; "The court finds no debatable aesthetic or other distinction between allowable antennas and satellite dish antennas."

The purpose of the due process and equal protection clauses in the Fourteenth Amendment of the US Constitution is to shelter the citizen against excessive or unfair government power. Thus, any zoning ordinance that is arbitrary or capricious may be a denial of due process or equal protection.

The purpose of the Fourteenth Amendment to the Constitution is to protect a citizen from abusive government power. Zoning ordinances are often used selectively, in violation of the Fourteenth Amendment.

All in all, because of the limitations of a single written report, I have tried to provide the dealer with the basic framework and foundation for understanding the process of zoning. With careful preparation and understanding of local procedures, the dealer can make an effective and convincing presentation. The dealer should be cautioned that each case is unique and requires careful study and evaluation. Not all zonings are bad!

Because zoning is a product of your business, this report has tried to focus on some of the unique characteristics and bribery is not one of them!

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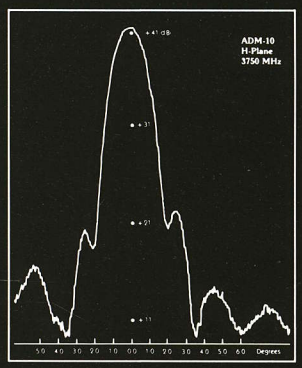

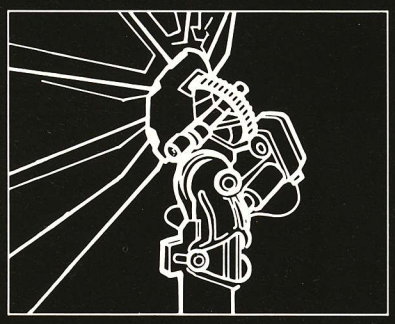

horizon to horizon mount with control, .050 aluminum perforating at 1/8 x 1/4 staggered and interlocking rim band for maximum strength are just some of the features. The Model ADM-10′ perforated antenna is a major advancement in the performance of see-through antennas and best of all makes ADM quality affordable. ADM also manufactures a 10′ steel and 10′, 11′, 13′, 16′ and 20′ aluminum models to round out a comprehensive selection. Call an ADM representative for more information and experience for yourself the benefits of the ADM quality tradition.

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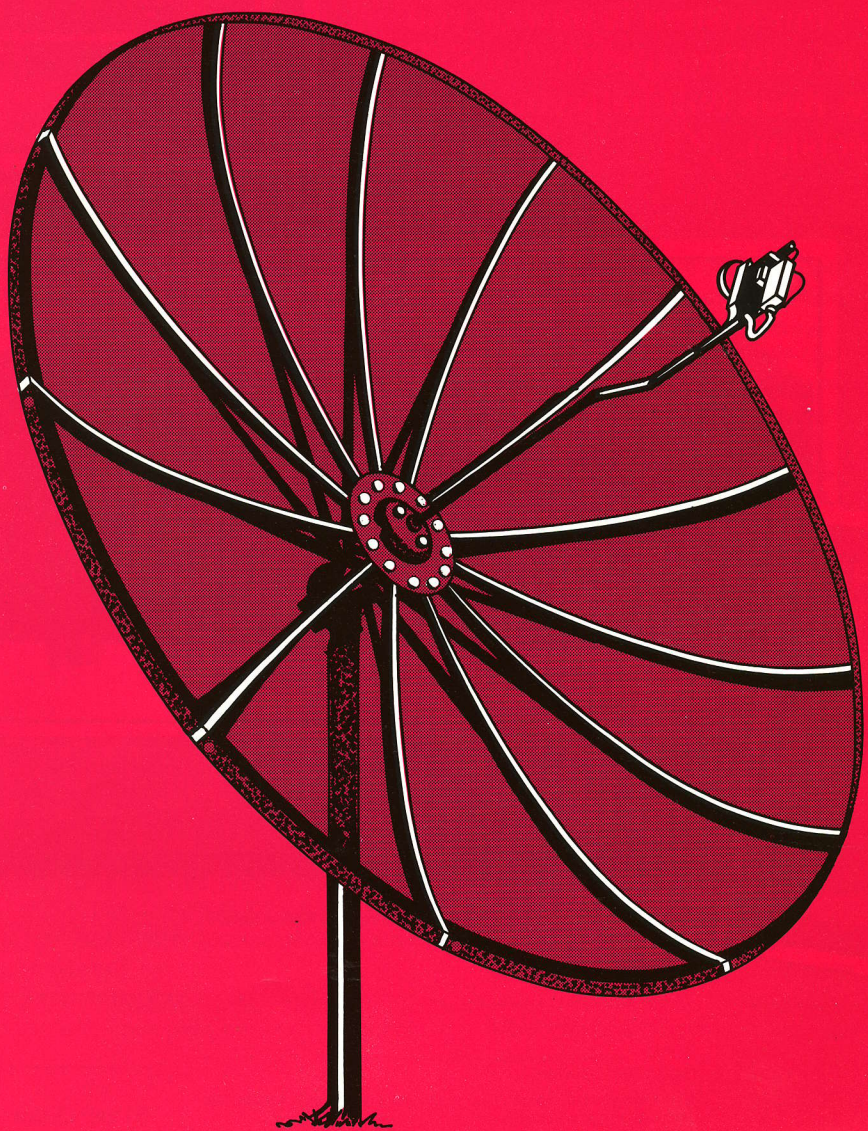

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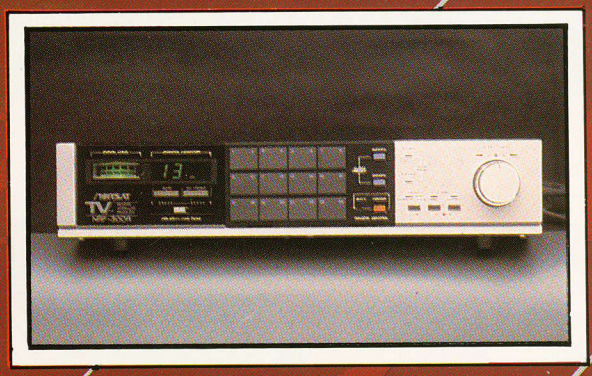

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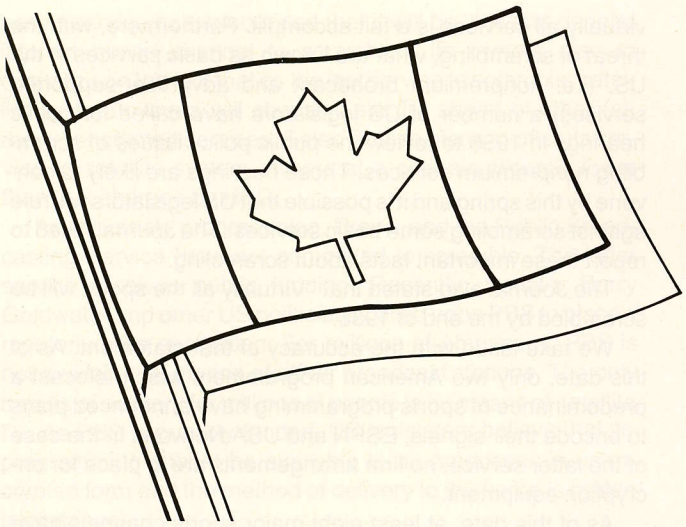


Canadian TVRO

by Mark L. Lewis

Merry Christmas, Happy New Year And The Sky Is Going Dark (Again)

The title of this article is partially in jest. Little more than two weeks into 1986, the Canadian Broadcasting Corporation, Canada's national publicly financed television service gave the satellite industry a belated Christmas present and New Year's greeting. The CBC broadcast, a 2 minute and 1 second segment on its nightly public affairs program, The Journal, which sent immediate shock waves through the Canadian industry. Reminiscent of the 1985 Marketplace program which drew outcries of "unfair" from virtually everyone involved with Canadian satellite systems, the new CBC piece concluded with words even more ominous than "the skies will go dark." This time the commentator said: "In other words if you've bought a dish for a free ride on pay-TV, you now own the world's most expensive upright ashtray."

The news item reviewed HBO/Cinemax's commencement of full-time scrambling on January 15th. Here's exactly what was said:

Transcript Of The Journal Diary (Wed.) Jan. 15, 1986.

Bill Cameron (host): "Journal Dairy—January 15th. If you tuned your home satellite dish to the American pay-TV service Home Box Office tonight, you probably noticed that HBO's signal tuned to chicken noodle soup.

For months now, HBO and another American entertainment channel, Cinemax, has been scrambling parts of their signals. Now the scrambling is complete, 24 hours a day. More satellite channels will follow.

Virtually all the American superstations, all-news signals, children's channels, movies, sports, variety, even the Playboy girly shows, all will be scrambled by the end of the year.

One and a half million private dishes in the US, maybe 200,000 in homes, bars, and hotels, will encounter once again the fact that there is no such thing as a free lunch and if you are thinking of turning your dish to Canadian pay-TV instead, do it fast, Fred Klinkhammer, head of First Choice, says his channel will be scrambled by next year."

Klinkhammer (President of First Choice Pay-TV Network): "It's a loss to those people who have been pirating that signal to date because they have been receiving the programming that HBO and myself pay for without paying anyone for it. They've been stealing it."

Cameron (program host): "The people who make and sell satellite dishes in Canada are paying close attention. Tekana Industries in Calgary makes and sells 450 dishes a month. President Greg Maclennan says that the initial scrambling may hurt a little."

Maclennan: "In some cases it may be possible that it may decrease the attraction. We don't believe that it will stifle the market."

Cameron: "There is some hope for people who live beyond the reach of cable, maybe a million Canadians and the others who want to keep watching pay-TV on their dishes. They will be able to rent decoders from Canadian pay-TV operators or their agents, but these decoders won't be cheap and they probably won't work for most American signals. In other words, if you've bought a dish for a free ride on pay-TV, you now own the world's most expensive upright ashtray."

The Canadian Industry Response:

The reaction from the home satellite industry was swift. The Executive Board of the Satellite Communications Association of Canada (SCAC) had a scheduled meeting on the following evening. Although none of the board members had seen or heard The Journal broadcast, all had received many phone calls during the day following the broadcast. It was agreed that a response should be drafted on behalf on the Association and a demand should be made for time to rebut the allegations contained on the broadcast.

On Friday evening (January 17th) just 48 hours after the broadcast, the SCAC board had a trans-Canada conference call. With participants separated by more than 3,000 miles, it was a heated phone conference. The majority of Board members voted to purchase a ½ page advertisement in the Globe & Mail, Canada's national newspaper. A committee was designated to write the advertising copy. It was agreed that if ever there was a call to arms, this should be the call.

If This Story Sounds Familiar...Please Stop Me

SCAC was formed after the Las Vegas SPACE/STTI Show in 1985. Many of its growing pains have been attributed to dealer complacency. The event which triggered formation of the SCAC, you'll remember was the "Skies are going dark" segment of the CBC program, Marketplace, where smiling Ed Horowitz of Home Box Office literally forecast the demise of private home satellite systems.

Unfortunately for SCAC, after a 60 or 90 slump, (caused by the Marketplace broadcast) business began to recover for many dealers, distributors, and manufacturers. Checks which were 'in the mail' failed to arrive. Here are some of the highlights of the SCAC written response to CBC's Journal.

Highlights of SCAC Response To CBC Journal Diary

"The Journal Diary piece we submitted, was inaccurate on a number of counts; the broadcast of incorrect statements by CBC is likely to cause harm to the Canadian satellite communications industry, and the broadcast is likely to erode consumer confidence in the products manufactured, distributed, and sold by SCAC members."

Mr. Cameron stated: "Virtually all the American superstations, all-news signals, children's channels, movies, sports, variety, even the Playboy girly shows, all will be scrambled by the end of the year."

Webster's Dictionary defines 'virtually' to be an adjective meaning "being in essence or in effect though not formally recognized or admitted."

The reasonable viewer would get the impression that in effect all programming services on satellite consisting of sports, variety, adult entertainment, movies, news, and children's programming will be scrambled by the end of the year.

That is simply not the case. The evidence indicates that the majority of services now found on satellite will not scramble in 1986; a predominance of services have not, as yet, adopted scrambling plans.

Furthermore, although a number of satellite programmers have announced an intention to scramble in 1986, the majority of those services have not ordered encoding and decoding equipment for their cable affiliates. Given the normal 'lead-time' of the US manufacturing industry, it may be difficult if not impossible to achieve scrambling in 1986 by many of the services which have announced scrambling plans. There are other impediments which make scrambling of many popular US services either impractical or totally in doubt.

Specifically, Mr. Cameron stated that "virtually all the American superstations will be scrambled by the end of the year."

Although a number of US common carriers which distribute broadcast television stations originating in New York, Chicago, Dallas, and Atlanta have announced an intention to encode their signals, the US Copyright Law of 1976 precludes scrambling and resale of the signals to cable or to the general public. The common carriers will require legislation exempting the superstations from the provisions of the US Copyright Law in order to implement scrambling. The Amendment to the Copyright Law is neither assured nor is it likely to be completed in 1986, if at all.

The scrambling of many services is a very volatile issue in the United States. The Journal represented that scrambling of virtually all services is a fait accomplit. Furthermore, with the threat of scrambling, what are known as basic services in the US, (i.e. nonpremium broadcast and advertiser-supported services) a number of US legislators have called for public hearings in 1986 to review the public policy issues of scrambling nonpremium services. Those hearings are likely to convene by this spring and it is possible that US legislators will rule against scrambling some basic services. The Journal failed to report these important facts about scrambling.

The Journal also stated that "Virtually all the sports will be scrambled by the end of 1986."

We take issue with the accuracy of that statement. As of this date, only two American programmers which telecast a predominance of sports programming have announced plans to encode their signals, ESPN and USA Network. In the case of the latter service, no firm arrangements are in place for encryption equipment.

As of this date, at least eight major sports channels have not announced any scrambling plans. These services include Home Team Sports, Pro Am Sports (PASS), Prime Ticket, The Meadows Racing Network, Home Sports Entertainment Dallas & Fort Worth (2 channels), New England Sports Network, and Madison Square Gardens Network.

These services provide much more sports programming than ESPN and USA Network. In fact, ESPN and USA will be missed by very few home satellite owners, as these services only broadcast a meager amount of professional major league sports. The eight aforementioned services are essentially dedicated to the broadcast of major league sporting events.

Add to those services, the dozens of occasional feeds of sports programming beamed primarily to regional cable and independent television stations. On an average night, a home satellite owner might find more than a dozen feeds of professional sports. In spring and fall on any evening, there are numerous professional baseball, hockey, basketball, and football games to be found on satellite transponders.

TSN, the Canadian sports service, has not yet unveiled actual plans to scramble in 1986 nor has it ordered the necessary equipment. It is likely that Canadian home satellite owners will enjoy another season of Expo and Blue Jay baseball games, in unscrambled form. With so many professional sports channels and occasional feeds, it is possible to follow the Toronto Blue Jays across North America. In 1986, home satellite owners will probably have access to at least half of the Jays' home and away games, dozens of which will not be televised by Canadian broadcasters or TSN.

Mr. Cameron's statements concerning sports programming are indefensible given the evidence that virtually all major league sports programming, thousands of hours of it, will not be scrambled in 1986 or the forseeable future. What is more, at least one channel openly encourages and invites home satellite owners to tune to its broadcasts.

The statements relating to movie channels were also inaccurate. To date, several movie services have not announced scrambling plans for 1986 or the future. These include American Classics, The Nostalgia Channel, and Home Theatre Network (HTN). In an article published recently in Broadcasting, a spokesman for HTN confirmed that the movie channel is unlikely to encrypt its signal. SelecTV, another popular movie-

based service has announced that it will be "the last general interest movie channel to scramble." Its owners plan to capitalize on the fact that as the last service to scramble, satellite system owners will choose SelecTV ahead of other (already) encrypted services. SelecTV also plans to offer its service to satellite system owners at a cost significantly lower than that charged by HBO.

As for variety programming, Bravo and the Public Broadcasting Service have not committed to scramble. The latter service receives public funding. Recently, Senator Barry Goldwater and other US politicians called upon PBS to place a moritorium on encryption. For millions of Americans, PBS is not available by means of off-air broadcast stations. The only means of delivery for millions of people is by means of satellite TV. As PBS is publicly funded, US legislators believe that its programming should be available to all Americans in unencrypted form and the method of delivery to the home is of little importance.

To the best of our knowledge, other services which include a variety of programming have no intention of scrambling. These include the House of Commons, Home Shopping Network, Country Music Television, Hit Video USA (music videos), more than 10 religious channels of various denominations, and the CBC. Incidentally, many of the religious channels provide excellent nonsecular children's programming. PBS also schedules more than 30 hours a week of high-quality commercial-free children's programming.

The Journal also reported that "Playboy girly shows" would also fall victim to the encryption in 1986. Many viewers might actually applaud the loss of that service. Nevertheless, for the record, there is a nightly service which transmits adult programming, specifically to home satellite owners. The service is known as American Extasy and it is supported by advertising. Last week, American Extasy confirmed that they will not encode their service in 1986, and have no plans to encode in the future. For the record, American Extasy will offer a "XXX" service to Canadian viewers which will be encoded. Apparently there is a market demand for this service, and the service offered by the Fantasy Unrestricted Network is also available to Canadian home satellite owners who wish to subscribe.

With respect to the comments offered by Mr. Klinkhammer, he stated: "It's a loss to those people who have been pirating that signal to date because they have been receiving the programming that HBO and myself pay for without paying anyone for it. They've been stealing it."

If Mr. Kilnkhammer was referring to private individuals tuning to HBO in their own homes, Mr. Klinkhammer's statements are not totally correct. US Communications Law explicitly states that interception of an unencoded satellite signal by private satellite antenna owners, without commercial gain, is not theft. In fact, HBO/Cinemax published an advertisement entitled "An Open Letter to Owners of Home Satellite Systems." In that advertisement HBO explicitly states their reasons for scrambling:

"An increasing number of commercial enterprises—including hotels, motels, bars, and apartment buildings are picking up our signals without permission and without charge."

HBO/Cinemax also states:

"At HBO, we are careful to distinguish between the legitimate reception of our signals by individual satellite system owners and theft by commercial establishments who may be profiting from our signal."

To use HBO's own words, reception by individual home satellite owners is "legitimate reception." Private owners have not, to use Mr. Klinkhammer's words "been stealing it."

Mr. Cameron or Mr. Klinkhammer may submit that this is a matter of semantics. Nevertheless, it is an important point in law. We believe that it was improper for Mr. Klinkhammer to make the allegation, and for CBC to broadcast the allegation that more than 150,000 law-abiding Canadians have been engaged in "stealing" signals. Once again, satellite TVRO represents a number of complex legal and economic issues, and the issue demands proper treatment, rather than glib insults and name calling.

Proper investigation by the CBC would have revealed that First/Choice and Home Box Office (until recently) did not negotiate home satellite rights for most of the films and feature programming which they transmit. It is also a matter of record that many private satellite owners tried to reimburse HBO for the use of their signals in the past, and HBO would not accept money from those private owners, primarily because they did not acquire the rights to sell the programming.Hence, Mr. Klinkhammer's contention that private satellite owners have been stealing from HBO is not justified.

With the commencement of scrambling, HBO has negotiated the right to resell to private owners. SCAC believes people should pay for subscription services where marketing plans are in place. However, SCAC also believes that encoded services should be sold to satellite owners at fair market value.

As for commercial exploitation, we concur that commercial exploitation by hotels, motels, and other venues where there is public exhibition is a different matter. SCAC does not condone illegal commercial distribution of copyright materials.

Mr. Cameron made erroneous statements concerning the availability of encoded signals. He said: "They will be able to rent decoders from Canadian pay-TV operators or their agents, but these decoders won't be cheap and they probably won't work for most American signals."

Again, Mr. Cameron may argue that it is a matter of semantics. Our research indicates that the cost of buying a decoder, outright, in most cases should not exceed 20% of the average installed cost of a satellite system. Obviously, an expenditure of $600 is not inexpensive, but given the immense variety of unscrambled programming which can be received by a system, plus additional premium programming which may be available through the use of a decoder, SCAC believes that home satellite systems will remain the most attractive and cost- effective way of delivering high-quality programming to hundreds of thousands of Canadians who live in remote and underserved areas.

One must remember that the majority of home satellite owners live in areas which receive fewer than three broadcast services. A majority of these homes will never have alternative sources of programming or alternative delivery systems.

Although HBO/Cinemax are the first general-interest movie services to encrypt their signals, there is ample evidence to indicate that in the United States resale packagers will provide scrambled services at a reasonable price. The

January 13, 1986 edition of Business Week Magazine revealed that TCI of Denver (a major multisystem cable operator) will sell a package of 17 encoded signals for under $29 per month to home satellite owners. This represents a price fully competitive with TCI's cable prices. Furthermore, TCI will lease the decoder for $6 per month. The TCI marketing strategy, we believe, is representative of the marketing plans of other distributors. One can hardly argue that a $6 per month decoder rental is overly expensive in view of the fact that Canadian cable subscribers pay (on average) over $5 per month for decoder rental to access the premium pay television programming. Therefore, Mr. Cameron's comments concerning decoders were without basis.

The Journal also failed to disclose that Canadian Satellite Communications Inc. (CANCOM) also markets a package of eight encoded signals consisting of first-run network and independent programming. We understand that CANCOM markets its package for under $20 per month inclusive of decoder rental. In the opinion of SCAC, this pricing is not excessive. Furthermore, the response of home satellite dealers and owners to the CANCOM service has been very positive. We believe that The Journal should have informed viewers that this package of services is available at a modest cost. Obviously, the perspective buyer received only the worst case scenario from The Journal rather than the truth that first-quality services are available and will continue to be available to Canadian home satellite owners either at no cost, or at a reasonable cost in the case of some premium services.

Lastly, we wish to deal with Mr. Cameron's closing comment: "In other words, if you've bought a dish for a free ride on pay-TV you now own the world's most expensive upright ashtray." We can only characterize these words as inflammatory and hardly responsible journalism. Mr. Cameron might argue on his behalf that with the impending scrambling of other services, he is entitled to his opinion. Nevertheless, his prediction concerning the usefulness of satellite systems was unfounded, given the facts. Further, if Mr. Cameron's response is that other movie (pay-TV) services are certain to scramble, we submit that in light of the evidence concerning other movie-based services cited above, his prediction was premature.

It should be noted, that even if all of those video services presently committed to scrambling carry out their threats, most home satellite owners will be left with more than 50 regularly scheduled services, plus more than three dozen radio services including the CBC stereo networks. Many radio programmers openly encourage home satellite owners to enjoy their broadcasts.

In our society, there are laws which prevent people from capriciously yelling "fire" in crowded movie theaters. Mr. Cameron's comments went far beyond the bounds of accurate, responsible, or balanced journalism or fairness.

Mr. Cameron may wish to reply that his "journalistic judgement" deemed that a "tightly scripted and tightly edited" two minute segment was sufficient to deal with a complex and volatile economic and legal issue. Mr. Cameron might also reply that time constraints of network television precluded the broadcast of a segment with "more depth" or that The Journal sought out and broadcast a balanced viewpoint with the comments of Mr. Maclennan, the Alberta satellite antenna manufacturer. We suggest that any of the above responses would be only illusory. Furthermore, Mr. Maclennan may not have been aware of many of the issues, nor of the inaccurate statements which were to be broadcast on the telecast by Mr. Cameron and Mr. Klinkhammer. Clearly, this was not a case where a satellite industry spokesman was in a position to respond on-air and in a timely fashion to the serious allegations against the satellite industry."

The letter to CBC was signed by Sam Singer, Chairman of the Satellite Communications Association of Canada, Singer also said in the letter:

"I was contacted by Daniel Swartz, of the Journal at approximately 5:15 pm on Wednesday, January 15, 1986. At the time, I was conducting a business meeting at my solicitors' office. Given the Association's concern for obtaining fair treatment by the press, I agreed to adjourn my meeting and to be interviewed over the telephone. The interview lasted approximately 30 minutes, during which time, I provided a number of statistics taken from a recent presentation to the Caplan/Sauwageau Task Force. I also emphasized the importance of the "basic services" to the majority of home satellite owners who live in rural areas. I pointed out that viewing of premium movie services such as HBO constitute only a small portion of the TV viewing diets of home satellite owners, and the fact that the scrambling issue has been faced 'head-on' by the satellite industry. None of my comments appear to have been used in The Journal Digest which was broadcast. I was personally shocked that the entire response of the satellite industry was summed up in one sentence, in an interview which was evidentially highly edited.

It appears to us that the CBC had an axe to grind.

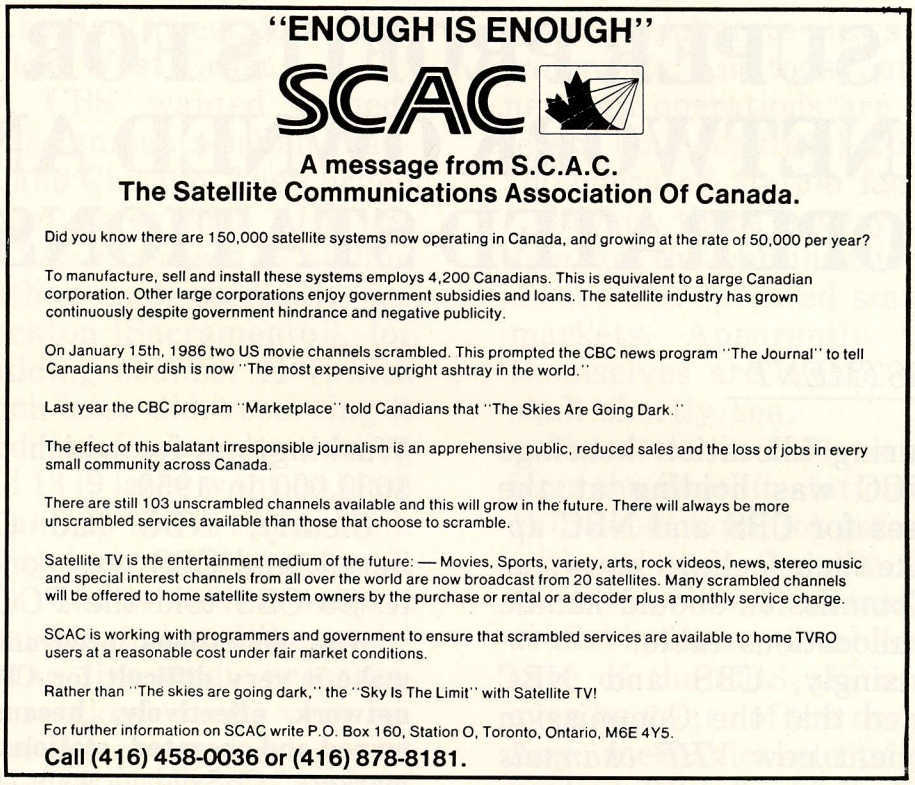
More than 4,200 people in Canada owe their livelihood to the satellite television industry through manufacturing, distribution, and sales. All of these people pay taxes and make a positive contribution to the Canadian economy. Many Canadian companies have made a major investment in this technology and Canada is a leader in the design and manufacture of satellite high technology.

SCAC respectfully submits that The Journal would not 'write off' the entire Canadian aerospace industry or segments of the pharmaceutical or agricultural industries in a biased two minute segment. We submit that The Journal owed the Canadian public a better researched, balanced, and unbiased broadcast.

Accordingly the Satellite Communications Association of Canada seeks an opportunity to rebut the untrue and inaccurate statements which were broadcast on The Journal.

We request a response in writing to this letter outlining the proposed method of redress not later than the close of business on January 30, 1986. Failure to respond promptly will result in a complaint to the CRTC pursuant to its Rules of Procedure under the Broadcasting Act as well as pursuit of other legal redress."

At the time this article was written, there had been no official response from the CBC. We have learned that the CBC has received telegrams complaining of the broadcast from other dealers and distributors, some of whom are not members of SCAC.



The Newspaper Advertisement Sponsored By SCAC

A message from SCAC, The Satellite Communications Association of Canada.

Did you know there are 150,000 satellite systems now operating in Canada, and growing at the rate of 50,000 per year?

To manufacture, sell, and install these systems employs 4,200 Canadians. This is equivalent to a large Canadian corporation. Other large corporations enjoy government subsidies and loans. The satellite industry has grown continuously despite government hindrance and negative publicity.

On January 15, 1986, two US movie channels scrambled. This prompted the CBC news program "The Journal" to tell Canadians their dish is not "The most expensive upright ashtray in the world." Last year, the CBC program "Marketplace" told Canadians that "The Skies Are Going Dark."

The effect of this blatant, irresponsible journalism, is an apprehensive public, reduced sales, and the loss of jobs in every small community across Canada.

There are still 103 unscrambled channels available and this will grow in the future. There will always be more unscrambled services available than those that choose to scramble.

Satellite TV is the entertainment medium of the future—movies, sports, variety, arts, rock videos, news, stereo music, and special interest channels from all over the world are now broadcast from 20 satellites. Many scrambled channels will be offered to home satellite system owners by the purchase or rental of a decoder plus a monthly service charge.

SCAC is working with programmers and government to insure that scrambled services are made available to home satellite users at a reasonable cost under fair market conditions.

Rather than "The skies are going dark," the "Sky Is The Limit" with satellite TV!

For further information on SCAC write P.O. Box 160 Station O, Toronto, Ontario, M6E 4Y5 or call (416) 458-0036 or (416) 878-8181.

Canada's Problems Are Much Different

Perhaps for once and for all, Canadians and foreigners doing business in Canada will realize that the broadcast media in this country are foes of home satellite systems. Furthermore, many of the outstanding legal questions concerning access of US signals in Canada will make the job of selling encoded signals doubly difficult in Canada. Add to that, the proposed marketing scheme of a KU-band package of signals (incompatible with a majority of home satellite systems) and one can appreciate the job which has to be undertaken if the satellite industry is to flourish in Canada.

Certainly in the United States it may become a defacto M/A-Com world with common decoders and a number of packagers willing to sell to consumers in a competitive environment. Once across the border however, everything is different. HBO and others simply refuse to sell up here because they themselves have not acquired many of the program rights, and CANCOM is using noncompatible scrambling technology for its C-band direct package. This year has started off with an unpleasant surprise for the satellite industry. The Journal Diary amounted to no less than a two minute negative prime-time advertisement. It may also have been that call to arms which will awaken a complacent and sleeping industry before it is too late.

SUPER PROFITS FOR 15 NETWORK OWNED AND OPERATED STATIONS

SOME INVESTMENT

In 1951 during allocation hearings which the FCC was holding at the time, witnesses for CBS and NBC appeared to make their feelings known as to how the Commission should handle the pending allocations table.

Not surprisingly, CBS and NBC were concerned that the Commission allocate sufficient new *VHF channels* so that they (individually) might have a crack at VHF affiliates in each of the marketing regions in the country.

However, CBS had *another axe* to grind also. CBS was worried about their inferior position, at the time, to the NBC folks. It seems that NBC had been careful about putting stations on the air (i.e. building their *own* stations, owned and operated by the network itself) *prior* to the freeze. NBC put WNBT (New York) on the air in July of 1941; WRC-TV (Washington) on the air in June of 1947; WKYC-TV (Cleveland) on the air in October of 1948; and KNBC (Los Angeles) and WMAQ (Chicago) on the air in January of 1949. This gave NBC owned-and-operated outlets in markets 1, 2, 3, 8 and 9. At that time, 1951, CBS had WCBS-TV (New York), put on the air by CBS in July 1941; KNXT (Los Angeles), which they had purchased as KTSL from the estate of Thomas S. Lee (Don Lee Network) for $3,600,000 in December of 1950; and 45% of WOIC (now WTOP, Washington), for which they had paid $630,000 in 1950.

Clearly, NBC had CBS outnumbered, and CBS was concerned about it. So CBS told the FCC:

"The allocations program planned will make it very difficult for CBS to operate a network effectively, because CBS lacks owned-and-operated stations in key major markets." CBS did not want UHF owned-and-operated stations because (they noted) **"for a considerable period, perhaps five years, a commercial UHF station cannot compete on anything like an equal basis with a commercial VHF station in the same community..."**. What they wanted were owned-and-operated VHF stations, and the carrot was **"effective network programming."** The inference in the CBS petition was that a network must have owned-and-operated outlets in those cities where **"TV programming originated,"** or it would not be a viable television network.

At that time, before the AT&T transcontinental microwave hookup was completed (September 1951), networks depended upon (1) kinescope recordings (essentially a fast film process) and, (2) live inter-connection; in that order. Virtually all network programs were kinescoped, but delays in reproduction and transit caused a one-week delay at best. The Christmas Texaco Star Theatre, for example, seen live on the NBC network in the East and through the Great Lakes, was not shown until the week after

Christmas in the Southwest, Mountain States or on the West Coast.

Specifically, CBS wanted owned-and-operated assignments in San Francisco, Boston, and Chicago. They urged the Commission to expand VHF assignments for San Francisco by adding channel 13 (then and currently assigned to Stockton [Sacramento]), for Chicago by adding channel 11 (which the Commission later did, reserving it for ETV), and for Boston by adding channels 9 and 13 (9 later went to Manchester, N.H. and 13 to Portland, Me.).

The owned-and-operated argument, *if it was really valid in 1951*, is subject to serious question *today*. When television was young, live studio presentations (without retakes) were a very important part of the programming procedure. And not all talent was concentrated in New York. *Many* network shows originated in Chicago (Garroway At Large, Kukla/Fran and Ollie, Mr. Wizard, etc.) and shortly thereafter when the transcontinental link was completed, in Los Angeles. CBS *may have been*, at the time, at a disadvantage.

And it was not only natural but reasonable that the network flagship stations, located in New York (for example), did double duty as local outlets and as centers for network program productions. In a word, networking in those days amounted to a large extent to inter-connecting stations outside of the coverage area of the New York City stations with the New York station, so that programs produced by and for New York gained added network exposure. Today, New York is merely the big apple market; its importance as a network origination point has become largely that of housing the elaborate news program departments. And today, unlike 1951, the network operations are distinctly different (*and separate*) from the owned-and-operated station facilities.

In fact, there is very little *justification* for the continuation of network-owned-and-operated stations in major markets. Apparently the networks themselves are aware of this, as we shall shortly see.

Networks in 1951 were inseparable from the flagship stations. Networks in 1975 could (and do) get along just fine without their flagship operations. If WCBS in New York was suddenly not available for any local service, the balance of the CBS affiliates would not even be aware of the demise of WCBS. Any mechanical-electronic inter-ties between WCBS and the CBS television network *are for convenience only* in 1975; they are *not required* for successful network operation.

The networks can, of course, be expected to dispute this statement. *They have good reasons to; 102.8 million reasons to be exact* (1973).

Economics of O & O

In 1973, the last complete year for which the FCC has released financial data, the 15 network-owned-and-operated stations earned a net profit (before taxes) of $102,800,000. If you divide that sum by the 15 owned-and-operated stations, you find that they averaged $6,853,333 each in 1973. *That is net profit*, before taxes, *each.*

Now just for comparison, 474 VHF stations had an average net profit, before taxes, of $973,211 for 1973. That is not exactly something to sneeze at, but it is only 19.8% of $6,853,333. Clearly, the *15 owned-and-operated properties*

HOW O & O PROPERTIES DEVELOPED

NBC

(1) Put WNBC-TV (as WNBT) on air on channel 4, New York, in July 1941;
(2) Put WRC-TV (as WNBW) on air on channel 4, Washington, in June 1947;
(3) Put WKYC-TV (as WNBK) on air on channel 3, Cleveland, in October 1948;
(4) Put KNBC-TV (as KNBH) on air on channel 4 in Los Angeles, in January 1949;
(5) Put WMAQ-TV (as WNBQ) on air on channel 5 in Chicago, in January 1949;
(6) Bought WKNB-TV (with AM) for $1,006,000 in Hartford, Ct. (channel 30) in December 1956, operated as WNBC-TV until September 1959, sold TV and companion AM property for $1,044,000.

CBS

(1) Put WCBS-TV on air on channel 2, New York, in July 1941;
(2) Participated as 49% owner in KTTV, channel 11, Los Angeles, when station went on air in January 1949, later sold off 49% interest for $200,900 in December 1950 when CBS purchased 100% of KTSL (KNXT), channel 2, Los Angeles, from estate of Thomas S. Lee for $3,600,000;
(3) Purchased 45% of WOIC, channel 9, Washington, in 1950 for $630,000, later sold 45% interest in 1954 for $3,000,000 (+);
(4) Purchased WBKB-TV (now WBBM) for $6,000,000 in February 1953, channel 2, Chicago;
(5) Purchased WOKY-TV, channel 18, Milwaukee, in October 1954 for $350,000, in 1955 bought physical plant of dark (off air) WCAN-25, Milwaukee, for $650,000, but took channel 18 off air in 1959 and sold dark station for $50,000;
(6) Purchased WGIH-TV, channel 18, Hartford, Ct., for $650,000 in 1956, operated as WHCT until 1959, when it took station off the air (i.e. went dark), eventually selling plant and CP for $250,000;
(7) Was successful applicant for channel 11, St. Louis, but purchased KWK-TV (channel 4, St. Louis) for $2,500,000 before putting channel 11 on the air. Disposed of channel 11 CP to combination of two **unsuccessful** litigants for application **in return for** both applicants' **dropping pending suits** against CBS, contesting initial award to CBS;
(8) Purchased WCAU-TV, channel 10, Philadelphia, for $20,000,000 in July 1958, as package that included WCAU radio.

ABC

The basic ABC O & O properties came from the holdings of the American Broadcasting Company and United Paramount Theatres Corporation in a merger approved by the FCC in 1953.
(1) WABC-TV, channel 7, New York; (2) WXYZ-TV, channel 7, Detroit; (3) WLS-TV, channel 7, Chicago; (4) KABC-TV, channel 7, Los Angeles; (5) KGO-TV, channel 7, San Francisco.

are platinum-plated gold mines.

Now the actual earnings of each of the 15 O & O stations is *not* public information. If we *happened* to have some of that data and published it here, we would most probably (1) get

sued, (2) get anybody who might possibly hand us such data in a great deal of hot water. So when you set out to analyze such figures, you have to do so *in ways* which can *only be done* from publicly available data. And here we go:

(1) *Network O & O stations operate in New York* (ABC, CBS, NBC), *Chicago* (ABC, CBS, NBC), *Los Angeles* (ABC, CBS, NBC), *Washington* (NBC), *Cleveland* (NBC), *St. Louis* (CBS), *Philadelphia* (CBS), *San Francisco* (ABC) *and Detroit* (ABC);

(2) In those nine markets, there are 64 commercial stations operating;

(3) The total net revenues (after expenses but before taxes) for those 64 stations, in 1973, was $169,264,900;

(4) And all 64 stations (including the 15 O & O stations) averaged $2,644,764 each;

(5) Yet 15 of the (64) stations earned $102,800,000 (before taxes), or $6,853,333 average.

So even *within* their markets, the O & O outlets managed to earn *259% more* than their market counterparts. As Table 2 shows, in every market the networks operate O & O outlets, the *average income* of the 15 O & O outlets *is far more* than the average income within that market; and that includes the Big Apple.

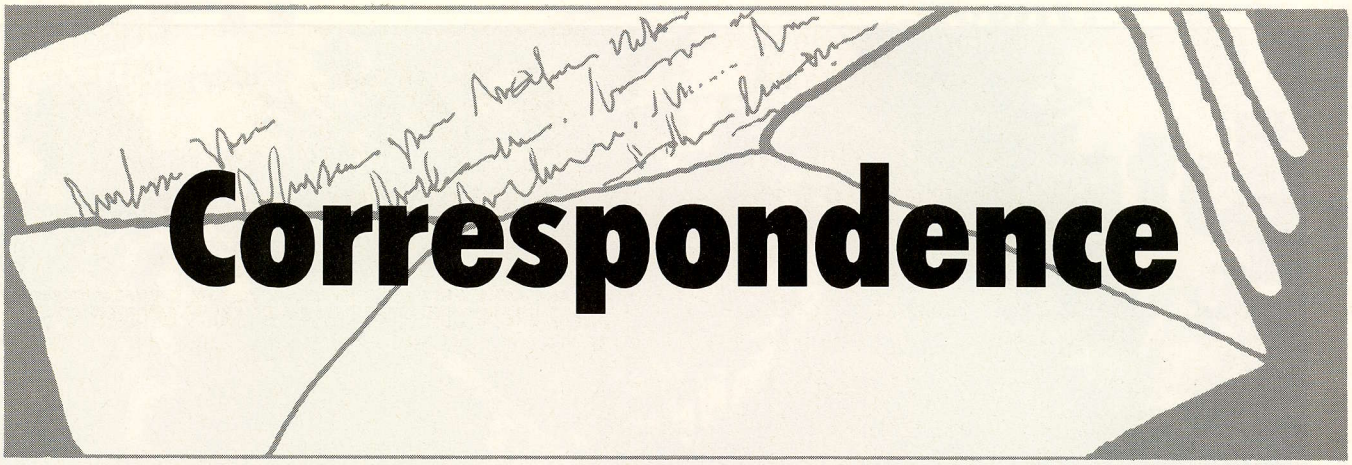
Now $102,800,000 is a fair anount of change, *especially when it is net profit.* That is *not* the equivalent of the *profit* on 1,710,333 CATV homes, but the *gross revenue* of that number of CATV homes!

And remember this has *nothing* to do with ABC/CBS/NBC network operations. This is for the 15 O & O stations *only.* (The networks returned a net profit before taxes of $184,800,000 in 1973; an *average* of $61,600,000 each.)

Now how does one justify that type of return? You might suggest that these O & O stations have *huge* investments and they are merely paying off their debt. OK, let's try that one on for size:

> *The depreciated investment in tangible broadcast property for the 15 O & O stations in 1973 was $33,200,000* (average of $2,213,333 per station); *thus the return on depreciated investment was 309.7% in 1973 alone!*

This series re-visits the history of terrestrial/broadcast television, from the perspective of the 70's "ultimate technology," cable TV. This series first appeared in **CATJ** magazine in 1975, and its publication forced many changes in **FCC** policy via-a-vis cable TV.



TI Cure Or Curse?

I found a very interesting cure for terrestrial interference while installing an 11 foot ECI antenna near a major microwave antenna farm in Alpine, New Jersey. The satellite picture was riddled with TI and even after I installed an ESP filter the reception left a lot to be desired. However, while adjusting the scalar feed, I had noticed that the TI came and went dramatically. When my arm was touching the feed, the TI disappeared completely. Naturally, I had no desire to spend the rest of my life standing in a yard in New Jersey touching somebody's scalar feed, so I hunted around and located a 6 foot long by 2 inch wide piece of wood. I found that when I strapped it to a particular spot between the outer edge of the dish and the feed, the TI disappeared. Then I added a second board to the opposite side and the reception became perfect on all transponders on all satellites. I had made a customer happy for about $1.98 in lumber!

Perhaps somebody out there can explain this phenomenon. Does wood act to disperse the unwanted TI signals as it hits a side lobe on the dish? If this is the case, is it the wood grain, the wood size, or the wood moisture content that is doing this? Would a different substance such as aluminum or perhaps Styrofoam® impregnated with a reflective material work as well or better? I would like to hear from others who are experimenting with such TI-busting techniques.

Chuck Blath
NJ Telesat
11 Evans Way
Piscataway, NJ 08854

There are three likely answers and there could well be a combination of occurences here. Microwave signals bend around objects (diffraction), they absorb into objects and they reflect from objects. A piece of wood, regardless of composition or moisture content, is a candidate for absorption. Remember that heavily vegetated trees in front of a dish will cut off the satellite signals. A chunk of wood falling in line with an interfering, narrow beam from a TI source (whether the source is direct or reflected from something nearby) simply acts like a sponge. Another little understood and little publicized trick is to create a lip or shield around the outer edge of the feedhorn's scalar ring. In situations where the TI signals sneak into the feed by bending over the lip, extending the lips towards the surface of the dish will change where the diffraction hits into the core of the feed and often will cure the TI.

Serious Effort To Crack Videocipher

The Digital Encryption Standard Users Group has been formed as a professional society to aid in the promulgation, application, and development of the 56 bit key digital encryption standard (DES) created by the National Bureau of Standards. Our initial means of communication will be a brief journal published quarterly and mailed first class to each member. A computer bulletin board will be on line shortly and may be accessed by each member through a telephone modem (300/1200 baud synchronous) or the 20 meter amateur radio band (300 baud asynchronous AX.25 protocol). Members of the society have been drawn from all walks of life, including a Dow 500 corporation president, a major university professor of applied mathematics, a general manager of an electronics company test equipment manufacturer, many professional electronic engineers, E.E. students, and microcomputer oriented amateur radio buffs from all callings and walks of life.

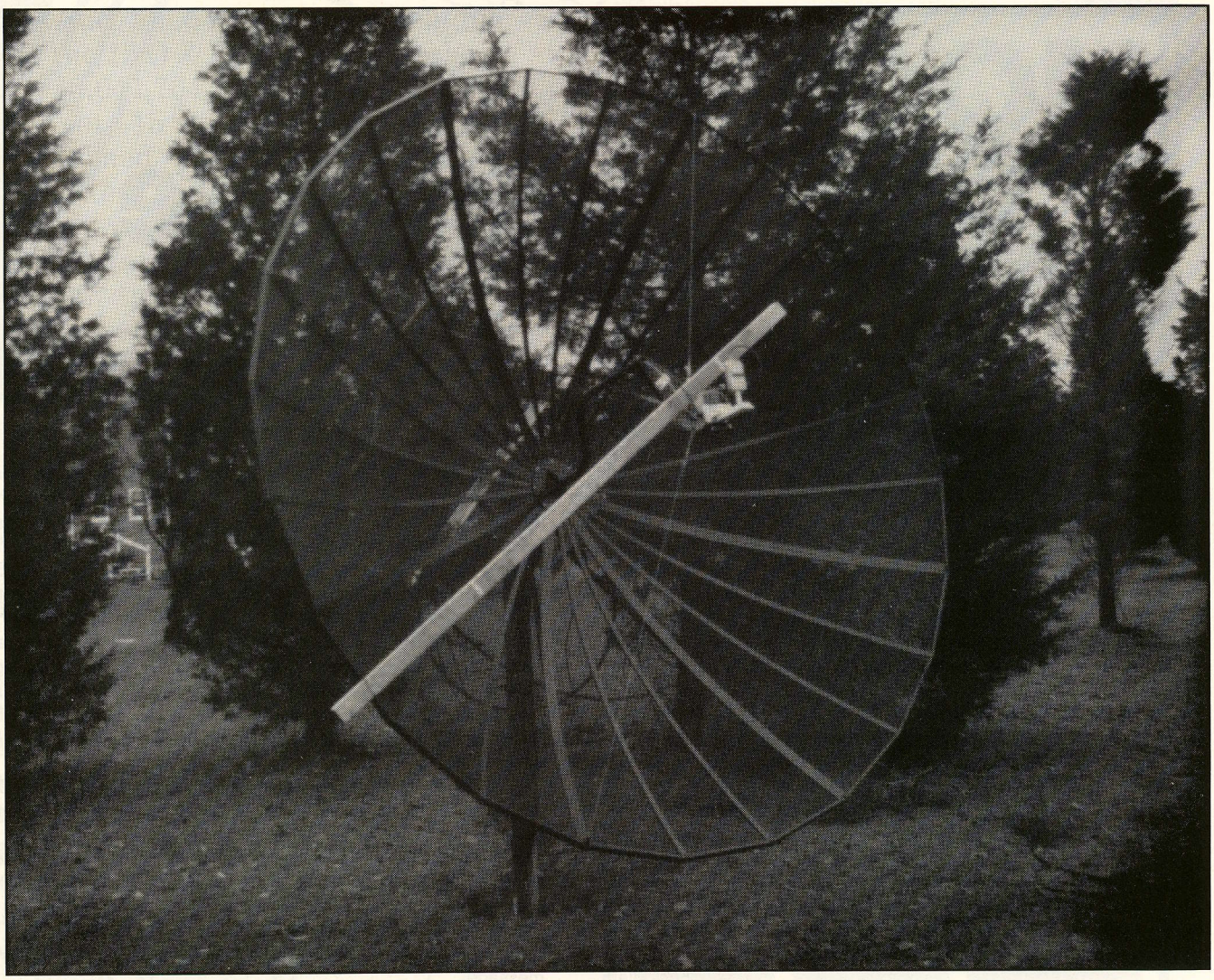
The society's annual meeting will be held this year in Dayton, Ohio, at the HARA Exhibition Center on April 25-27. The meeting room will be announced at HARA and to members directly.

The major subject to be discussed this year is the 56 bit key encryption standard deciphering contest sponsored by the society. Hopefully, a number of paradigms that represent possible approaches to the microcomputer oriented contest problem will be presented, i.e. The contest presumes that the 56 bit key is transmitted encoded in the message.

There are no dues for membership in the DES User's Group. Mailing costs are covered by self-addressed, stamped envelopes provided by the members. Printing costs are covered by voluntary contributions with a $5 maximum. Anyone interested in joining should contact the undersigned for additional information.

Robert M. Richardson, Secretary
DES User's Group
Drawer 1065
Chautaugua, New York 14722

Hummm. This announcement may need some deciphering on its own. It says that some of the best, free-lance minds in the US, each with some personal interest in breaking the VideoCipher DES encryption system algorithm, are grouping together as a society to divide up the task. This is not a light-weight effort and anyone that is capable of making a contribution should explore the effort. Now, if we were M/A-Com, we'd support and even welcome this serious effort. Look at it this way, if the DES algorithm can be broken, better we all find out now while there are only a few thousand decoders out there. It would be much tougher on M/A-Com if they had several million in use and somebody broke it. By breaking it early, if it can indeed be broken, M/A-Com will have the opportunity to correct their mistake without big damage to



their repurtation. On the other hand, if this user group fails and it cannot be broken. M/A-Com can move ahead with the added assurance that by failing to break the system, VideoCipher will probably be successfully operated for a decade or more. Good show! Oh yes, brother Richardson's telephone number is (716) 753-2654.

Lower Cost Distribution

This will describe a system for distributing up to six television signals through a master antenna system of an apartment building or similar complex. Either loop-through or home run wiring systems can be used with this technique with equal success.

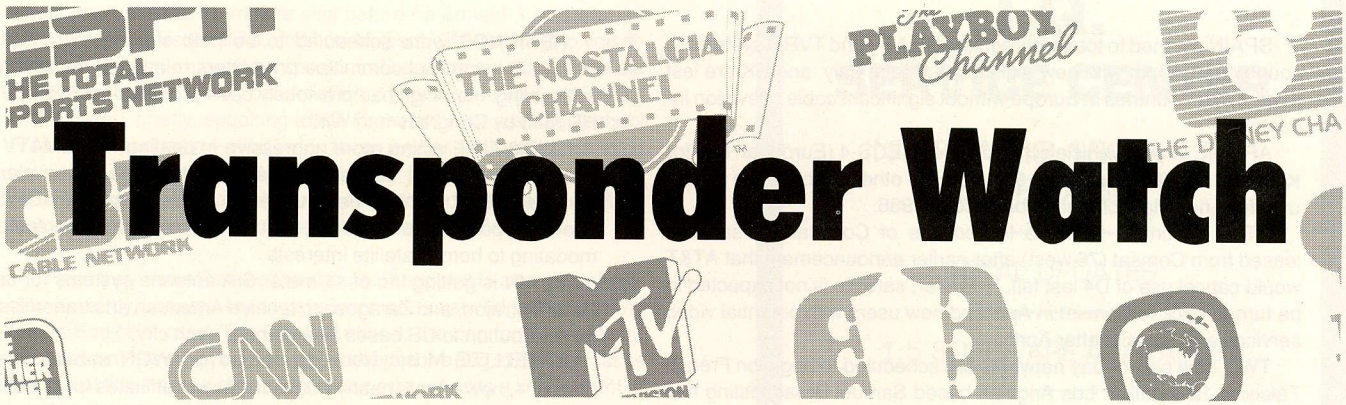
The basis of the system is simplicity itself. It involves modulating the channels which the operator of the system wishes to protect or encrypt by selecting sub-band channels commonly referred to as T7, T8, T9, T10, T11, and T12 (T13 was left out because of its proximity to TV channel 2). These channels are not capable of being intercepted by the standard TV sets, even those equipped with cable tuning systems. The channels are located below VHF channel 2, and are therefore very low in frequency so they can be transported considerable distances without extra amplification. The video carrier center frequencies are 7,13,19,25,31, and 37 MHz, so MATV parts and cable works excellent here.

The signals, modulated to sub-band channels, and fed through the SMATV system, are completely transparent to the system itself. In order for customers to be able to view or use these channels, they must have an in-apartment or in-home converter box which translates the various (or all) T channels back to a frequency which can be tuned in on a standard or cable ready TV set.

The key to such a system is the availability of relatively low cost modulators for the T or sub-band channels and the availability of some type of receiving converter units. I found the answer to this double problem in Italy where many low frequency modulators and converters are utilized for various European channel assignments. Those interested in such techniques can contact me for additional details.

Peter C. Sutro
MPI Satellite, Inc.
PO Box 769
Barnardsville, NJ 07924

Sub-channel transmission is not a new concept but one often forgotten in the rush to high tech solutions to low tech problems. Peter's units from Italy are well made, excellent in performance, and unusually inexpensive.



Transponder Watch

BRITISH Columbia's Minister of Communications, Pat McGeer, is taking on the Canadian Federal Government. McGeer is opposing a bill (C-20) which would prohibit home satellite antennas from bringing US signals into Canadian multiple residence dwellings.

THREE transponders (1, 12, and 16) are still available for full time use on the Galaxy 1 bird. Rate of decay for older transponders on F3R, meanwhile, seems to have slowed down during past six months.

ARABSAT has decided it wants a $25M refund from satellite supplier(s) because of alleged failure of bird's gyro stabilizer system. ARABSAT 1 has been placed on standby status while ARABSAT 2 is now being used as primary bird.

EUROPEAN sources, fearful of complications from the failing KU-band 20 watt transponders on ECS-1, now predicting the first satellite may be totally retired as early as 1987. Bird should have operated through 1990.

EUROPEANS haved worked out a secret lottery to determine which of the present video transponder users will be dropped if (and when) the first ECS-1 transponder quits altogether or drops below useful performance levels. A lottery envelope, identifying the loser, will be opened when failure occurs.

UNITED Kingdom will be launching BBC television service worldwide before end of this year, taking 30 minutes per day news feeds first, and then expanding schedule to include entertainment programming as well in 1987.

CANAL 5, from France, should be available on undetermined US or Canadian satellite after trans-Atlantic hop. Popular French programming, for limited day segment, is intended for distribution within Canada and perhaps US by terrestrial TV stations.

LOSS of Challenger Shuttle will have serious effects on future space launches for perhaps two years or more. European Ariane launch capacity had been sold-out for balance of next two years before loss of Challenger. US may be reverting to Delta unmanned launch vehicle in 1987 to allow catch up of launches being set back by loss of Challenger.

HBO released figures for early sign ups by home satellite owners and others. Scrambled service(s) do not match studies done on availability of decoder units. HBO numbers are significantly higher, as claimed, than distributor reports tally for descrambler availability. HBO also claims that 93% of all orders are for both HBO and Cinemax services.

UNIDEN has revised projection of number of satellite dishes to be sold in US and Canada for 1986; downward from 700,000 region to under 180,000. Channel Masters' projection by Don Berg hangs in there at 400,000 region. February shipments apparently totaled no more than 10,000 system units industry wide.

LOSS of Challenger all but stopped dead the space insurance and reinsurance industry. Rates had climbed close to 25% of insured value prior to loss; now rates simply do not exist because of high risk factors.

AUSTRALIA is rattling Intelsat cage by offering international services for video, data, and voice on their new, operational-now KU-band satellite system. Aussat-3 bird, last in series, will provide significant coverage and spare (30 watt) capacity for regions of south Pacific.

DBS permit holder, USSB, has asked FCC for clarification of FCC DBS rules and suggest not being in DBS after all. USSB would use their planned satellites for video conferencing, Muzak music transmission, and a host of other C-band type services, rather than jump exclusively into the Direct Broadcast Satellite business, if FCC approves. USSB reported the financial community is not willing to provide funds for DBS since the DBS proposals seem unworkable to most in the money end.

SUPER-Bowl XX made its way to luxury liner Queen Elizabeth II via unusual route. Intelsat configured normally voice-only Inmarsat satellite system to allow transmission of game to ship lying off coast of Peru.

UK growth of (11/12 GHz) home satellite is painfully slow. Latest figures show 803 government granted home satellite licenses, up 147 in the last 48 day period. Of these, 15 have been to hotels, 495 to shops and dealers, 39 to schools, and only 254 to individuals. Many large department stores, including Harrods, carried home satellite systems for the Christmas season, but apparently this sales effort failed to produce results. Concern now is that the UK may not be a market for satellite systems after all.

NEXT TVRO-related satellite via Shuttle, now delayed indefinitely, would have been Westar VI scheduled for June 24th. Same launch date would have also applied to Indonesian Palapa B-3 bird.

INTELSAT cutting back on planned launches of new generation VI birds; flight F5, planned for 1989 and scheduled for use in Europe and possible DBS type applications, now rescheduled for 1991.

EUROPEAN space planners see a transponder 'glut' of unused TV-capable KU-band transponders as early as late 1987. The period 87-90 is seen as not requiring additional, new transponder capacity with only in-orbit spare and replacement launches scheduled.

SPACE Communications Corporation of Japan has ordered twin KU/Ka-band satellites from Ford Aerospace valued at some $200M (US) each. Birds will have 35 transponders each and be located, when launched, at 128 and 124 east.

BEST, accurate souce for C- and KU-band transponder users in North America remains WESTSAT Communications Satellite Chart (issued six times per year, $19 US for US subscribers) published by WESTSAT Communications, PO Box 434, Pleasanton, California 94566, (415) 846-7380.

SPAIN planned to totally deregulate SMATV and TVRO systems in country this month with new legislation. Spain, Italy, and UK are last three major countries in Europe without significant cable television industry.

ARIANE launch vehicle scheduled to lift ECS-4 (European bird for KU-band and (US) Spacenet 3 in May. No other US birds are scheduled for Ariane launch during balance of 1986.

AT&T continues to make limited use of Comstar D4 satellite, leased from Comsat (76 west) after earlier announcement that AT&T would cancel use of D4 last fall. However, satellite is not expected to be turned back to Comsat in April and new users with potential video services are possible after April.

TWO new part-of-day networks are scheduled to begin on French Telecom 1B satellite. Los Angeles based Samuel Broadcasting has plans to launch European Business News channel as well as farm-related Argo News channel. Financial service will include excerpts from US FNN; ARGO channel will originate in Paris.

AUSTRALIA formally inaugurated already operating Aussat-1 domestic satellite service this past January 26th in day of national celebration. S/A B-MAC scrambling system is being used for video transmissions.

EUROPEAN engineers expect the power loss for two transponders on ECS-1 to stabilize after TWT's have dropped approximately 7 dB in system capacity. The two transponders affected are 3 and 6.

SKY CHANNEL, European version of WTBS, has signed agreement to televise popular Italian football (soccer) league games. Sky Channel sports coverage has been limited previously.

WANG, computer manufacturer, now has international satellite network which programs up to 30 hours-per-month, linking some 74 sites together.

HEARINGS were scheduled to be held starting March 6th by House Telecom Subcommittee on matters relating to home satellite scrambling. Hearings had previously been promised on HR1769 and HR1840 by Congressman Wirth.

SHOWTIME acting more aggressive in dealing with SMATV and smaller cable firms, suggesting that Showtime marketing plan for home satellites, to have been unveiled at Las Vegas SPACE/STTI show this past February 19-21, should also have been more accommodating to home satellite interests.

SPAIN is getting trio of 11 meter S/A antenna systems for use in Rota, Torrajon, and Zaragoza to receive American arts transmissions for distribution to US bases located near each city.

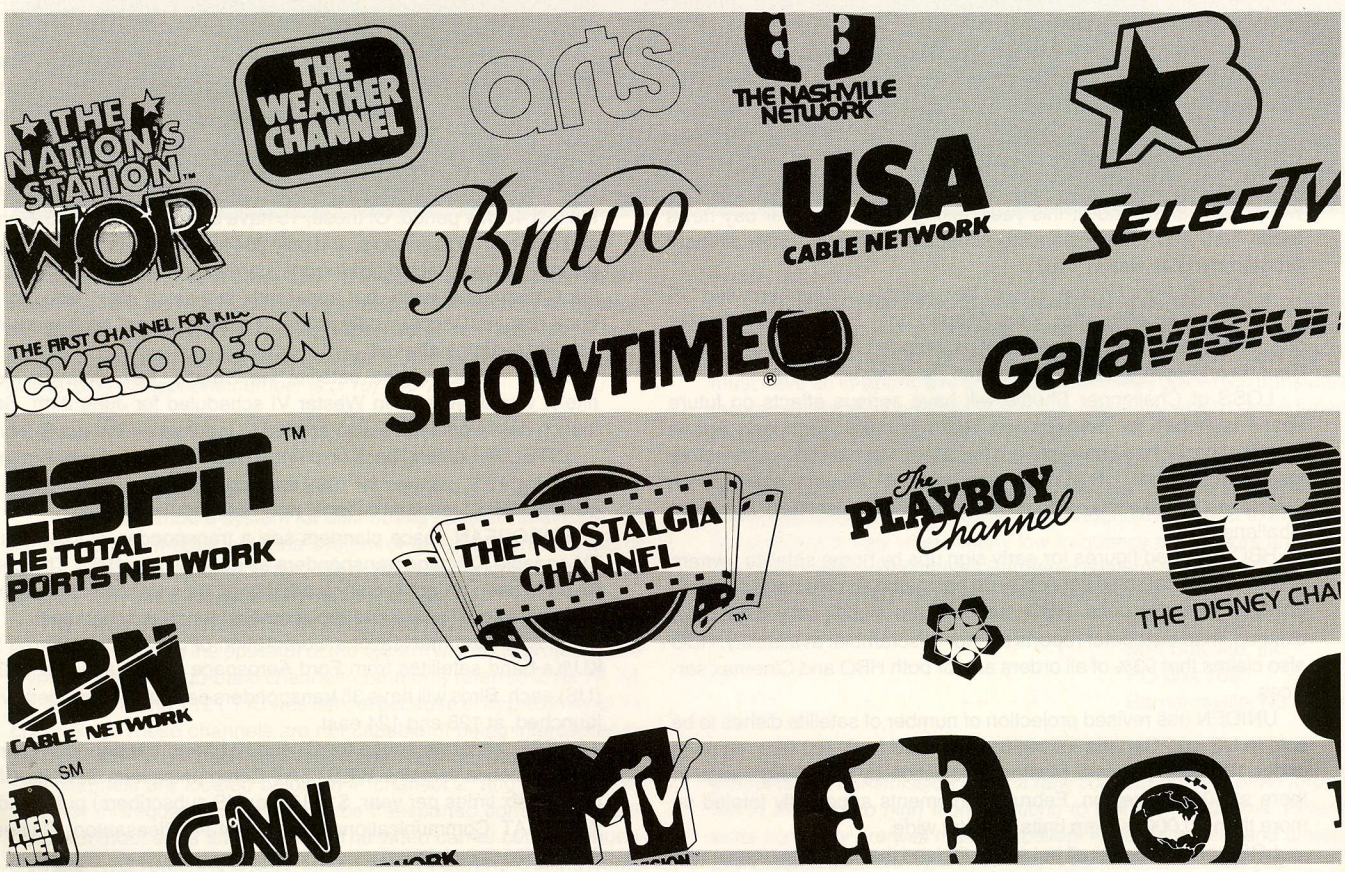
SATELLITE Music Network, carried on WGN sub-carriers on Galaxy 1, now boasts nearly 700 radio station affiliates for its contemporary and country music services. Company had 117% increase in revenues for 1985.

PTL, a major programmer of religious broadcasts carried on Galaxy 1 and Satcom F3R, has laid off a reported 500 people in its work force totaling more than 2,000.

S/A continues its financial comeback with a 31% increase in order backlog and an 11% increase in net earnings from the same reported quarter a year ago.

ARABSAT Director General has been asked to resign his post for reasons of "financial, administrative, and technical incompetence." ARABSAT program is generally viewed as being in a mess by European space industry people in a position to monitor the system and its operations.

NASA expected more than 4,000 applicants for the Space Shuttle plan to carry a journalist onboard. The program was announced prior to the loss of Challenger, but with deadline approaching only 15 journalists had applied.



Coop's/continued from page 9

would have a 10 to 15 minute wait before he arrived. I was warned what to say, where to stand, and how to react. "If he speaks to you directly, in English, relax. If he speaks in French to an aid and the aid translates for you, be very careful of what you say and how you say it." I considered, briefly, speaking to the President in broken high school French. I wrenched my mind trying to remember enough French to be hospitable and the only thing I could recall for sure was 'Voulez vous couchez avec moi?' Roughly, "will you go to bed with me?" I decided that was probably not an appropriate greeting for Baby Doc.

"Here they come!" came the shouts. I snapped to attention alongside an army general. My fingers were nervously fidgeting with my Lands End brief case. The General noticed the bag for the first time. "Put it down!" he snapped; "Now!." I dropped the bag at my feet just as the first of three armor plated Mercedes screeched to a stop in front of us. Out of the four door vehicle climbed four of the largest black men I had ever laid eyes upon. Each one carried enough ammunition laced around his midsection to start World War III, and each fondled their own shiney, automatic weapon. Their leader walked to me, stood barely inches from my nose and surveyed me from head to toe. I had to battle an intense desire to release the contents of my bladder. Then he removed a small Motorola handheld radio from his belt clip and spoke into the microphone. I even understood his French as he said "Everything is ready, you may proceed." A second Mercedes appeared in the driveway and four more black men emerged. One looked quite different than the rest; lighter in color, not nearly as trim and fit as the others, and he was dressed in a safari styled set of brown fatigues with a silk shirt. This man walked directly towards me just as a third Mercedes pulled up and four more very large people all carrying similar weapons climbed out. The slightly heavy set, young man extended his hand and in flawless English said "Welcome to Haiti and thank you for coming." I was shaking hands with Baby Doc Duvalier.

"Will you follow me?" he suggested, and I glanced at the General

pondering what to do with my Lands End bag. The President quickly saw the reason for my concerned look and in French told the head of his security, "I want him to bring his bag," a signal that he was not worried about what the bag might contain or that I was any type of threat to his personal safety. At the very least I had expected to have the bag carefully searched. The journalist in me desperately wanted to whip out the Canon camera and start snapping pictures. The chicken in me won out and I left the camera stowed in the bag. We walked into the huge entrance way and down a marble hallway towards a sitting room which contained enough national treasures to qualify as a museum. Everyone remained standing until Baby Doc sat down. Then the rest of us sat down, I on his right hand side. There were perhaps 10 others in the room, and introductions were in order. Those I recall meeting included the head of security, the head of the national radio network, the head of the national television network, the head of the national telephone company, the head of ... and so on.

I carefully reached into my Lands End bag and with my right hand clearly visible slowly drew out a stack of books and magazines with my left hand. Balancing them on my knee, I offered them to the President explaining that these books contained "all of the world's knowledge on low cost, high performance satellite receiving systems." Baby Doc smiled and responded "Of course they are in French???" We all laughed.

A servant dressed as if he were attending the French Court in the 19th century appeared. "Would anyone like something to drink?" Baby Doc was leafing through my stack of publications and seemed not to hear the question. Nobody said anything so the question was repeated, this time in English. Again nobody said a word; we sat quietly while the President thumbed through my publications. He glanced up and saw the servant standing there.

"Yes, a coke please," he answered. Then each of the others placed their orders; 10 cokes. If Baby Doc had ordered lime juice, the servant would have gotten 10 orders for lime juice.

The meeting, scheduled to last 30 minutes, went for two hours. Could Baby Doc have satellite television?, How many channels could be received? Would any of the channels be in French? How would he have the reception available in his palace; his 'Summer Palace', and, his 'Beach Palace'? And on and on. The head of the television network had done his homework and he was sure that nothing less than a 13 meter dish would be adequate. That concerned Baby Doc.

"That is such a large structure," he kept saying. "how can we hide it???" It took me over an hour to finally figure out that his concerns for hiding the dish were not environmental; he was worried that the peasants in the streets would see the dish and grow even more restless because Baby Doc was indulging himself in the private enjoyment of forbidden television.

Local Haitian television consisted in those days of a few hours per day of local news and virtually nonstop coverage of the activities of the President. Television was used by the government as a propaganda tool; it had very little educational and certainly no entertainment value. The Port-au-Prince cable system relied on videotapes pirated from Miami and flown down daily on the jet. Baby Doc allowed this system to exist because it was primarily functioning within the wealthier neighborhoods and the system operator had agreed to delete all news coverage from the tapes. The only news the Haitians received was news that had been approved by the Duvalier government.

I suggested a solution.

"You already have a 13 meter Intelsat dish on the edge of town. Place your own dish or dishes at the same location where they will attract no special attention. Then we can link the dishes for your television to your palaces with terrestrial microwave. A small 2 foot microwave dish at each palace will bring you your selected programs."

Discussion then centered on whether the system would pipe, say, 10 to 12 simultaneous channels of 'private microwave' from the main receiving site to the palaces or just one channel at a time.

"Can we not place a technician at the site to change channels for me when I wish to view another program?" Duvalier kept asking. He, for some reason, didn't want more than one channel at a time winging its way to his palace(s). I quietly pondered the new bureaucracy being born here; a cadre of loyal men who worked in eight hour shifts before a bank of television monitors to select, on command, a specific television program to be relayed via terrestrial microwave to the palace where Baby Doc happened to be at that moment.

Duvalier's satellite receiving system could not go with him on the US Air Force C-141 transport plane when he fled his homeland this past February. He is unlikely to find the kind of satellite programming he has grown accustomed to viewing available in his new home-in-exile. As I watched with fascination the limited amount of television news tape available documenting his reign in Haiti and his fleeing to France, I had several quick impressions.

Duvalier had lost weight since I visited him; while he was still being described as 'chubby', I would estimate he had lost 20 pounds over the past four to five years. It was probably the running. One of the Haitian Air Force personnel who carried me about on that day of my visit had confided that he ran, often daily, with Duvalier on the palace grounds. I remember him telling me, "I make it a point to be available when he wants to run because that time with him, alone, is very important to my career." I had asked if the heavily armed larger-than-life guards ran with them also. "Oh no," he had assured me; "but they station themselves along the route of the run."

Duvalier had assumed power at the age of 19, succeeding his infamous father 'Papa Doc' who had ruled Haiti for 13 years before him. The story in Haiti was that for the first 8 to 10 years of the Baby Doc rule, it had been a group of eight or so high level ministers appointed by his father who really ruled the country. I was lead to believe that Baby Doc was largely a puppet of this nonelected inner circle that had grown powerful during his father's ruling period. Another story I repeatedly heard from Haitians was that Baby Doc, even back in 1980, wanted to leave Haiti; forever. There were court stories reporting that on several occasions he had tried to leave Haiti, on his own, but had been stopped or persuaded otherwise by this inner circle of powerful people. At the time that made sense to me; if he lacked the intensity of his father, inherited his position through an early death of his father, and never really relished the power, I could see this 'chubby' lad anxious to get away from the court intrigue of his position.

But, alas, this is not an appropriate forum for such a discussion. Baby Doc himself was not an intimidating person in my eyes. His voice was gentle and he seemed to almost play at being ruler rather than taking it seriously. His eyes were not cruel and his manner was anything but abrupt. I have been around people of power before and their aura was demanding. Baby Doc gave me none of those feelings. He was the kind of guy whom you wanted to sit down and have a beer with to discuss the weather and the major league baseball standings.

Haiti will possibly be a better place to live now that the Duvalier regime is over. Possibly. On the other hand, with that 'Council Of Eight' still around, Duvalier's Haiti may just go on as before. To me, Jean Claude Duvalier was a reluctant ruler who simply tired of being caught up in a situation not of his own making. And when the opportunity arose, he bundled up his family and his assets and left. I could identify with that.

Zoning/Shallow Victory

Senator Barry Goldwater, a friend of satellite TV and champion of many electronic causes, had promised us that the FCC would look into the abundantly anti-competitive zoning ordinances being adopted in many communities across the nation. There seemed to be a pattern; communities from Maine to California were rushing into ordinance form legal wording designed outwardly to curb the sale, installation, and use of satellite dish antennas. The suspicions were that local cable operators were behind the ordinances, clearly designed to prevent individuals from having satellite systems in their yards.

Cable, of course, denied any complicity in the ordinances; it was

simply a coincidence that hundreds of towns and cities all over the country were entertaining essentially the same ordinances at the same time. Life is filled with all sorts of coincidences.

We talk about zoning as a practical matter in this issue. One of the most flagrant misuses of zoning as a tool to squash competition has occurred in southern Florida where cable firms have been successful in getting various towns and cities to zone-away dishes. One community requires would-be installers of satellite dishes to take their zoning permit request to the local cable company for approval before the request can be heard by the city. No complicity there, right!

On February 11th on the SPACE/Satellite Showtime television program (Spacenet, TR17; 9:00 pm eastern on Tuesdays), SPACE's associate legal counsel, Fred Finn, commented on this FCC ruling. After all of the back patting where SPACE took credit for getting this action through the FCC, Finn summed it up:

"Now it is up to the courts to fill in some of the details...."

Those details are about as wide, and long, and deep as the original problem. Let's see what the FCC really did.

"State and local zoning or other regulations that differentiate between satellite receive-only antennas and other types of antenna facilities are preempted unless such regulations:

a) Have a reasonable and clearly defined health, safety, or aesthetic objective; and

b) Do not operate to impose unreasonable limitations on, or prevent, reception of satellite delivered signals by receive-only antennas or impose costs on the users of such antennas that are excessive in light of the purchase and installation cost of the equipment.

The FCC originally proposed some pretty tough preemptive regulations in this area. Unfortunately, when the final decision came out, the language had been toned down remarkably. Basically, the Commission found itself at odds with the National League of Cities (basically, a trade association of cities), and many states. There has always

been a fine line, not well defined, between state/local rights to govern and federal rights. Each side wants to maintain the biggest possible power base and for all time the cities plus the states have been able to keep the federal people out of telling them how they can use their land. The satellite receiving antenna preemption comes very close to that line.

The Commission found itself faced with hundreds of 'what if' examples. There were 170 formal filings on this issue (SPACE was one of these) and most were the FCC getting involved in local zoning matters. The FCC finally took the side that if zoning rules have been adopted to single out satellite receive antennas for special zoning treatment, and/or if satellite antennas are not treated like other antennas (such as outdoor terrestrial TV, amateur radio, et al), the zoning ordinances were probably illegal.

But, the Commission left the door wide open for each city faced with FCC preemption to appeal their own zoning ordinances through the court system. In effect, the FCC said "Here are the new rules; now, if you don't like the new rules, go to court."

The effect of all of this is sure to be hundreds, perhaps thousands, of court cases. The lawyers will get richer and while these court cases are winding their way up through the local/state/appeal court system, the present zoning ordinances prohibiting satellite antennas are likely to stay in effect. Generally, it is possible to keep a law in effect while the matter is under court appeal. That tells me we may be five years or longer waiting for all of those expensive lawsuits to wind their way through court. Many attorneys will send their kids (and perhaps grandkids) through college based upon the appeals process of this zoning situation.

In the meantime, you will still have municipal ordinances telling you that you can't put a 6 foot dish in the backyard in West Palm Beach or any dish on the roof in Elmhurst. And you won't sell dishes in those affected communities in the interim unless you are willing to pay the cost of the initial legal battles at the local level.

Do we have a zoning victory? Some will argue that with the FCC ruling we now have a uniform national policy which can be taken into court to justify claims that local ordinances prohibiting or inhibiting dishes are illegal, immoral, and possibly fattening. They are right. We now have a national policy. Unfortunately, we are going to have to enforce that national policy a township and a city at a time, one by one, through the court systems. You can lead a city to a federal regulation, but you can't force that city to accept the regulation without a fight.

Cable's Monopoly

One of the most often cited comments I hear from satellite dealers is, "Isn't there something we can do to stop HBO from selling their programming package(s) only through their cable franchised distributors? Isn't it illegal, or something, when they refuse to sell through us???"

This is logical. And this is America.

A public utility, such as the telephone or power company, operates a monopoly. One of the legal requirements of a monopoly is that the firm with the franchise must offer the same service to everyone at the same effective rate. There are no monopolies in satellite television.

Years ago, our court system found it was a case of prejudice when some retailers refused to serve customers of a certain race. The courts said that our Bill of Rights guaranteed equal service to every person, regardless of race, creed, or color. HBO does not deny service to you or me because we may happen to be Jewish, black, or Chinese. Perhaps if we could prove that all satellite owners worshipped an unusual God, we might make a case for religious prosecution but I doubt that is likely to happen.

There is something called 'The Colgate Doctrine,' the result of a court case years ago in which a supplier (Colgate) was accused of refusing to sell its products to a particular retailer. The retailer attempted to prove that it could be harmed by the marketing policy of Colgate, and without the Colgate products in its store(s), it might not be able to survive. The high court found to the contrary, that with or without the Colgate products on the shelves, life would go on as before. In effect, the high court said that if you are a privately owned business, it is your right to sell to whom you wish. Period.

It is sometimes fun to believe that because the US government funded space research and made possible the present satellite system, that every American has some inalienable right to access any and all programming available on every satellite in the sky. State taxes pay for toll roads but access is not universally open to all; trucks that are too big are routinely banned as are military convoys carrying nuclear warheads. Local taxes pay for city streets but some streets are not available to vehicles with three or more axles. Taxes pay for the airport rest rooms but men are banned from the womens' room. So even within the totally tax supported structures, there are rules and regulations and permissible uses as well as non-permitted users.

Satellites are paid for with private funds. Satellite launches are paid for with private funds. Satellites are operated with private funds and the satellite programming is created with private funding. If you want a say in how satellites are operated, buy some RCA stock. But, be sure you buy enough to get your voice heard because that is the American way.

No, satellites are not public and their use is set not by public policy directives, but rather by private profit motivations. So, are lawsuits charging HBO with unfair practices and denial of access to their services a waste of time?

Not at all. If we can prove, in court, and if we can sustain the initial decision in our favor on-appeal (and reappeal), we may well be able to show that there are unfair trade practices at work here, because even private business practices are subject to antitrust and other rules. My concern is not that HBO is a stinker, but that HBO is only going to service the cable TV folks; my concern is that in the process of proving this (which I feel certain we as an industry could do) we will all die and be buried before such a case ends up in the Supreme Court. And I assure you that until such a case gets all the way to and through the Supreme Court, nothing will change because of a court action. I simply don't think we can wait around while a generation or two of lawyer's kids go through college courtesy of the satellite industry. With our present economic problems, those lawyer-kids had better be prepared to attend a no-charge state college because we won't have the money to pay for much more.

I begin a dialogue in this issue addressing some things I believe we can do to change our eventual place in history. I believe we are to the point, as an industry, where we had better move to create our own programming which we control, if we are going to continue selling satellite systems with the promise that there will always be something up there for our customers to watch with our wondrous dishes.

SPACE can file all of the major actions it wants, including that 60 page document charging CBS with being nasty people. But we had better have a better game plan than waiting for all of these lawsuits to mature and end, or we will end long before the lawsuits do.

Rural Cable And Translators

A CBS task force formed within its affiliate member group is reportedly studying the possible technical solutions bringing service to those US homes where the network service is not available. CBS admits there may be 400,000 such US homes. The number is far higher than that, perhaps by a factor of 10, since CBS makes some invalid assumptions about their present reach.

Years ago, it was the habit of TV broadcasters to rush to build maximum height towers to cover as much ground as possible. Between affiliates, there was spirited competition to carve out viewing areas for themselves. The reason for this was obvious—money.

An example is found in northern California where the San Francisco CBS affiliate (channel 5) is able to cover a wide region from Monterrey/Salinas in the south to Fort Bragg in the north. There is nothing but ocean to the west, so ideally, the San Francisco

TV stations, with their backs to the ocean, would use directional transmitting antennas confining their coverage to the north, south, and east.

To the east is Sacramento, where for years, people watched San Francisco television with typical 50 foot steel masts and big antennas. Then as the TV freeze lifted, Sacramento received its first local television and these new stations coached to their own viewing those viewers who had grown accustomed to CBS service from San Francisco.

About 20 years ago, the Sacramento stations realized they had a great market opportunity. They would all form a common corporation and build a huge tower which would go west of Sacramento, as close to San Francisco as possible. The idea was that since Sacramento viewers wanted to watch San Francisco anyhow, and would retain their large, fringe area antennas to do so, those antennas would point west towards San Francisco. Why not build a new tower that would be 'on/inline' with the San Francisco heading from Sacramento? ramento?

The FCC maintains certain rules and regulations concerning how far away from the principal city of license a TV (FM) station or AM station can place its transmitting antennas. They measure the signal strength of the signal and require a principal city contour or signal level over the full community-of-license. That imposes some technical restrictions on how far away you can move, and still squirt the required amount of signal back into your main city. The Sacramento stations pushed this by moving as close to the San Francisco Bay Area market as possible, while still placing the required minimum signal back into Sacramento.

This was an economic move. By being as close as possible to the Bay Area, they actually became the dominant TV stations affiliated with the three major networks (ABC, CBS, NBC) for hundreds of thousands of East Bay homes.

When the networks pay the stations for carrying their network shows, the number of homes where the station dominates is the key count number. By adding several hundred thousand homes where Sacramento was dominant, the Sacramento stations picked up money which otherwise would have gone to the San Francisco stations. The expensive tower was paid for in a very short period of time with the additional revenues paid by the networks.

The San Francisco stations were virtually helpless in this power play. They simply lost viewers and revenue. Now, what does this have to do with the CBS study of those homes that still do not receive CBS service via terrestrial means?

In England, there are four national networks. It has been the practice to assure any area where there are 10 or more homes that they will receive the signals of these four networks. The British actually spend money to build low power repeater/booster (translator) stations to serve such small groupings of homes. This works, at some considerable cost to the government of course, because the UK is a compact, relatively small country. There is no equivalent of Texas, Colorado, or Wyoming in the UK.

Big distances and FCC rules that protect the viewing service for the big concentrations of population, such as demanding that certain minimum signal levels exist in the cities served, work, contrary to this approach for the US. During the 50's and 60's, cable TV flourished in small communities because cable was the only practical way for stations to reach these people pockets. When most of the larger-smaller communities were cabled, that growth cycle for cable came to a halt. Another technology (translators), started at about the same time as cable, proved less ideal. The concept of a translator is good; a low power (typically 10 watts or less) transmitter is connected to a receiving antenna to pick up the master station, or another translator. The 10 watt transmitter is connected to directional transmitting antennas which then rebroadcast the signal on a new channel into a small area not receiving direct master service. Using normal sized home rooftop antennas, you can expect to serve no more than a mile a watt or 10 miles maximum with such installations. In actual practice, the least im-

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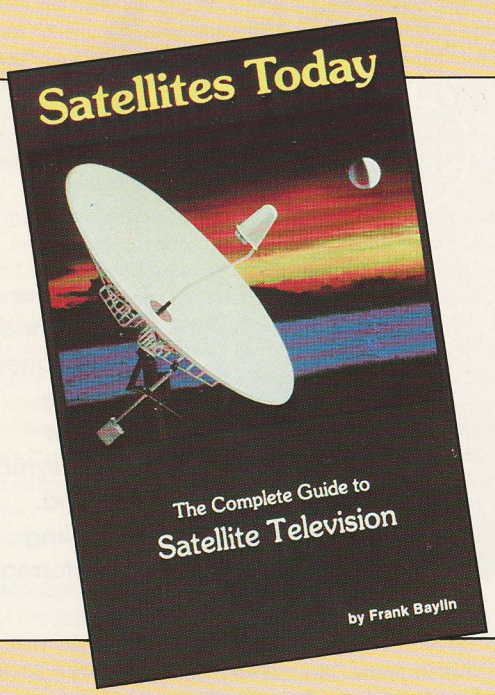

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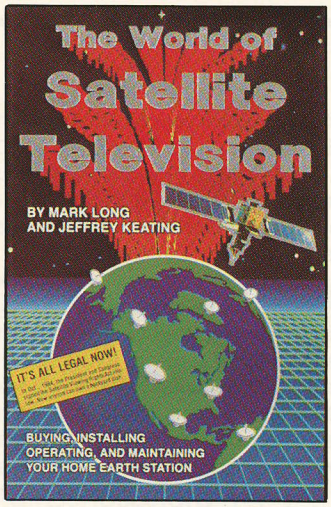

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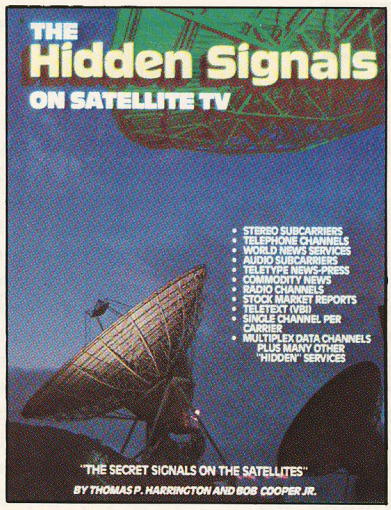

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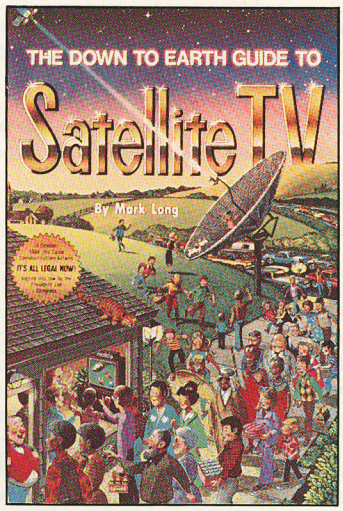

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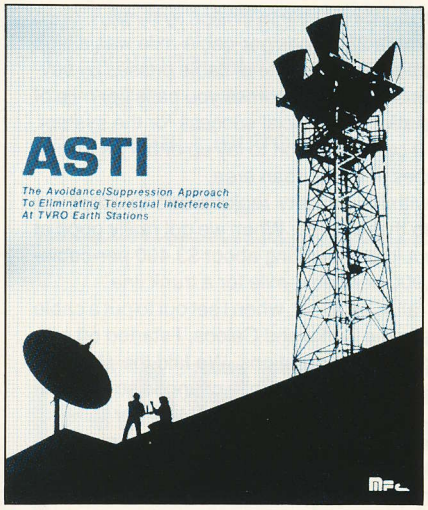

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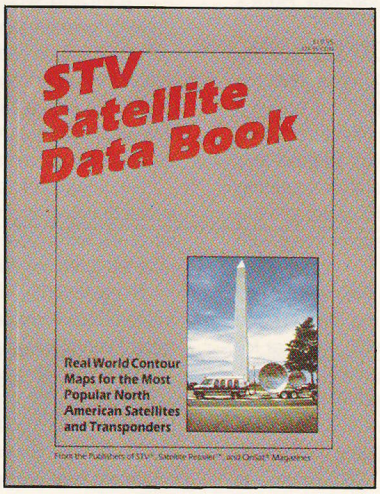

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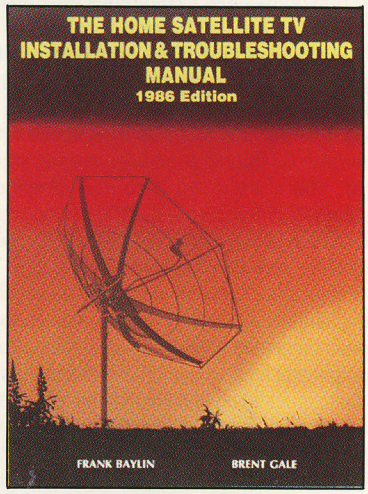

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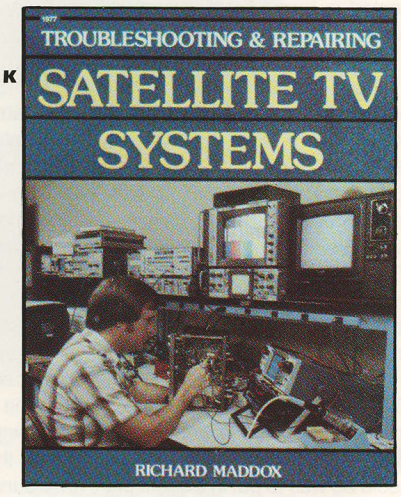

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pressive hill or knoll will stop these flea powered signals, so the viewers need to have a clear line of sight to the 10 watt transmitter to make the system work.

For a short while, TV stations toyed with funding the translators themselves. A typical translator system can be installed for $5,000 or so, but if you are only going to reach 100 homes with such a system, you still end up with $50 per home invested in the new coverage.

While TV stations do earn income based upon the number of homes they serve at $100 or so a whack, their income does not increase enough to bother with the technical problems associated with translators. Translators were then left for the public to fund. Because the public had no real way to collect funds, the system fell into ill-use. No, translators are not the answer. Remember, in the UK their successful network of translators works largely because the people-pockets are far fewer in number and because the government, directly or indirectly, pays for the installations. I don't think even CBS is suggesting that the government pay for a vast network of translators so CBS (plus ABC, NBC, and PBS) can be seen directly by every home in the nation.

On a purely cost question, the least expensive way of serving those 400,000 homes that CBS admits are unserved, is via satellite. Here's why.

Let's suggest that CBS agreed to pay for a national CBS satellite service. They could put their own WCBS on satellite 24 hours a day for less than $780,000 per year. That works out to under $2 a home a year. The service could be on satellite within minutes of a decision; whereas, a national translator system would take years to fund and build. There would be zero maintenance (think about maintaining thousands of translators!). There is no-way CBS could approach the economics of satellite, NBC and ABC could do the same thing with their New York City flagship stations.

If the networks want to respond to public need and they want to do something to serve rural Americans who live outside the direct reach of their terrestrial affiliates, they'd spring for the $780,000 per year for transponder time to launch their flagship stations on satellite.

Just to keep everything in perspective, the way advertising revenues are generated at the network level would allow CBS to pay for an entire year of transponder cost for their WCBS with just the advertising revenues from one production of 'Sixty Minutes.' CBS revenues for the fourth quarter of 1985 were $1.35 billion with net profits of $55.4 million. That's a quarter; one fourth of a year. I suggest CBS cannot only afford the relatively light bite of a $780,000 per year transponder bill to launch WCBS full time, but that they owe it to the public to do so.

Oh yes, just to keep things in perspective, CBS revenues for all four quarters of 1985 were greater than the total amount of money now invested in home satellite systems by every home satellite owner in America. Think about that for a while.

Then there is rural cable.

More than 10 years ago, a group of non-Bell rural telephone companies decided they wanted to be in the cable TV business. Some of these firms tried to build test systems in places like Wisconsin and Georgia. They did this using federally insured low-interest loans. Eventually, the FCC put a severe crimp in their plans, ruling that a telephone company that has a monopoly cannot also corner the coaxial cable distribution market in the same area as their telephone system. The FCC has been living under the fantasy for 20 years or more that eventually cable TV systems will provide competition to Ma Bell systems and other telephone firms. The FCC likes to think competition will make the telephone company a more agreeable business in town.

The test systems were built with a purpose to determine how cable TV, a technology that works best when the housing density is high, might be modified to work where the housing densities are low. This didn't work out very well because the best the experimental systems could do was to put in a cable plant for around $4,500 per-cable-mile. When you had to run down a mile of road to serve Farmer Jones house, and it cost you $4,500 to get to the Jones farmhouse, you had to look at how long it might be before you got your $4,500 back. The answer was simple enough; at $20 a month, it would take you $4,500 divided by $20 or 225 months. That's nearly 19 years and that assumes no interest on the money advanced to build the one mile of plant to reach the Jones' farmhouse and no upkeep or maintenance expense. No, rural cable was not going to fly. But they tried.

Then they tried to make the same coaxial cable do other things, like function as a telephone line and read the Jones' power meter remotely so the power company meter reader never had to drive that mile just to read a single meter. That gave them three separate functions on a single piece of cable. Unfortunately, wiring the Jones' farm with telephone line cost less than $4,500 a mile; far less. The telephone line could handle the telephone calls as well, and if they wished, also read the power meter remotely. So, when you weighed the services possible with the existing, lower cost telco wire pair and the services possible with a new coaxial cable system, it turned out you were far better off, if money was no object, doing the three tasks separately. Bunching of services on one coaxial wire didn't help the cost problem. Once again, shared use coaxial cable was not going to work.

Years ago, when I began building cable television systems, I found myself operating in areas where 25 homes per-cable-mile was a high density area. In most suburban areas, a mile of cable passes by several hundred homes. Obviously the more homes you pass per mile of cable, the better the expectation of financial success for the system. For all practical purposes, it costs as much to lay up or bury a mile of cable in a rural area as it does in a suburban area.

So, I learned to cope with low density regions and to adapt my cable building techniques to these areas. When we got really good at what we were doing, we would be spending about $3,400 per-cable-mile for a feeder line or $3,900 per-cable-mile for a trunk line.

More recently, this past fall to be exact, when I set out to put a cable system into Providenciales in the Turks and Caicos, I started off with what I recalled from my prior cable operations. We laid the plant out (using a Mac computer this time; technology has changed somewhat) and figured out the costs. It would run around $4,400 per mile for feeder and $5,100 for trunk. Most of our lines would be trunk since the population on Provo is widely scattered. We are running 25 channels on Provo and our maximum line amplifier cascade is 30 trunks plus a couple of extenders. The object is to have pictures at the end of 32 amplifiers which are not noticeably degraded from those at the headend.

On some of the islands in the Caribbean, I have seen people attempt to build cable plants using only line extender amplifiers. These are the lower priced, low-grade amps which have limited ability to amplify one after another for a long run. The results were predictable: terrible noise and cross mod, caused by poor amplifier characteristics and improper concern about amplifier input and output levels. On other islands, I have seen construction techniques that can best be described as crude. Rather than attach galvanized steel hardware to the support poles to suspend the cable, they have simply looped the pole, with the aluminum jacketed cable, cinching it up tight by catching the pole in a cable-knot. Needless to say, the cable kinks, bends, and usually ruptures the outer shield when this is done.

Using the wrong type of amplifiers or neglecting to use galvanized hardware is not a suitable cost-cutting mechanism to reduce cable TV plant costs. But there are some tricks to this game, such as selecting the right amplifiers for the job and selecting the right cable and hardware. There are no real secrets here, but if there is sufficient interest we'll run a series on how we have done it recently in the Turks and Caicos. The techniques will translate to virtually anyplace in the world, with some minor modifications.

CBS, which started all of this, is on the right track. They now admit there are some homes (400,000 they say) which are beyond the reach of CBS television network signals. Now, what will be done to correct this problem?

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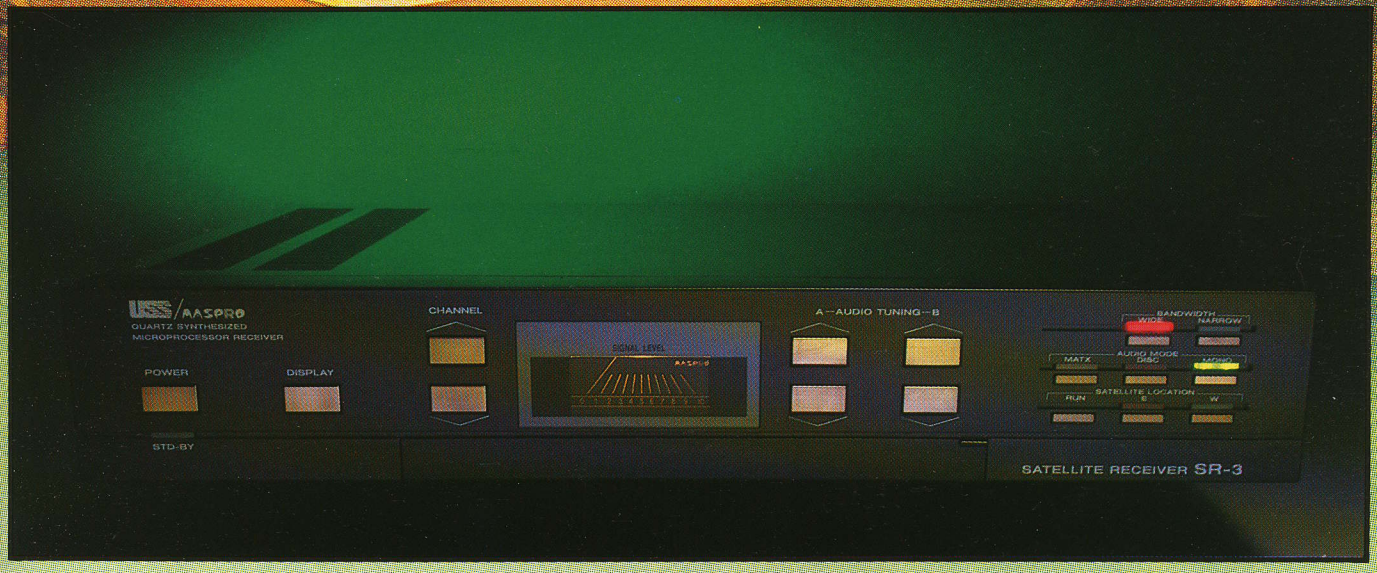

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